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## USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK

### Volume 160

*KC-10A AIRCRAFT, NEAR AND FAR-FIELD NOISE*

SEPTEMBER 1982

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AIR FORCE AEROSPACE MEDICAL RESEARCH LABORATORY  
AEROSPACE MEDICAL DIVISION  
AIR FORCE SYSTEMS COMMAND  
WRIGHT-PATTERSON AIR FORCE BASE, OHIO 45433

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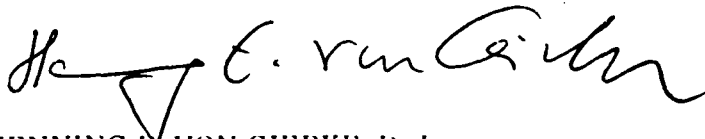
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This report has been reviewed by the Office of Public Affairs (PA) and is releasable to the National Technical Information Service (NTIS). At NTIS, it will be available to the general public, including foreign nations.

This technical report has been reviewed and is approved for publication.

**FOR THE COMMANDER**



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sound levels, preferred speech interference levels, perceived noise levels, and limiting times for total daily exposure of personnel with and without standard Air Force ear protectors. Far-field data measured at 15 locations are normalized to standard meteorological conditions and extrapolated from 75-8000 meters to derive sets of equal-value contours for these same seven acoustic measures as functions of angle and distance from the source. Refer to Volume 1 of this handbook, "USAF Bioenvironmental Noise Data Handbook, Vol 1: Organization, Content and Application," AMRL-TR-75-50(1) 1975, for discussion of the objective and design of the handbook, the types of data presented, measurement procedures, instrumentation, data processing, definitions of quantities, symbols, equations, applications, limitations, etc.

## PREFACE

This report was prepared by the Biodynamic Environment Branch, Air Force Aerospace Medical Research Laboratory, under Project/Task 723107, Technology to Define and Assess Environmental Quality of Noise from Air Force Operations and 723109, Communication and Performance Capability and Operational Noises.

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## INTRODUCTION

The USAF KC-10A is the advanced tanker/cargo aircraft powered by three CF6-50C2 turbofan engines. The aircraft was manufactured by the McDonnell Douglas Aircraft Corporation and the engines by General Electric Co., Aircraft Engine Group. The commercial version of the aircraft is the DC-10.

This volume provides measured and extrapolated data defining bioacoustic environments produced by this aircraft during ground runup operations. Such data are essential to evaluate ear protection requirements, limiting personnel exposure times, voice communication capabilities, and annoyance problems associated with operations of the KC-10A aircraft.

This volume is one of a series published by the Air Force Aerospace Medical Research Laboratory (AFAMRL) under the same report number (AMRL-TR-75-50) as a multi-volume handbook that quantifies the noise environments produced at flight/ground crew locations and in surrounding communities by operations of Air Force aircraft and ground support equipment. The far-field, community-type, noise data in the handbook describe the noise produced during ground operations of aircraft, ground support equipment, and other ground-based equipment or facilities.

Volume 1 of this handbook discusses the objectives and design of the handbook, the types of data presented, measurement procedures, instrumentation, data processing, definitions of quantities, symbols, equations, applications, limitations, etc. Refer to Volume 1 (reference 1) for such information because it is not repeated in other handbook volumes.

A cumulative index lists those aerospace systems contained in the handbook, and identifies the specific volumes containing each type of environmental noise data available (i.e., inflight/flight crew and passenger noise, near-field ground crew noise, far-field/community noise). Volume numbers are assigned sequentially as individual volumes are published.

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1. Cole, John N., USAF Bioenvironmental Noise Data Handbook, Volume 1: Organization, Content and Application, AMRL-TR-75-50(1), Aerospace Medical Research Laboratory, Wright-Patterson Air Force Base, Ohio, 1975.

## NEAR-FIELD NOISE

### MEASUREMENTS

AFAMRL acquired near-field noise data on the KC-10A aircraft during ground runup operations of its turbofan engines. For these tests, the aircraft was located on a concrete taxiway at Wright-Patterson AFB with no significant reflecting surfaces in the vicinity except the ground plane. Table 1 gives the surface meteorological conditions and the engine power condition. The ground-crew chief selected the power condition and near-field location used during routine maintenance or engine runup for preflight checks.

At the near-field location a test engineer randomly moved a hand-held microphone in and around all areas where a crew member's head would normally be located. He recorded the noise sample on magnetic tape. During analysis, he determined the root-mean-square sound pressure using an 8-second integration time to derive a power averaged level for the location.

Figure 1 shows the near-field location where a ground crew is usually located for maintenance and/or preflight checkout operations. Estimates of noise levels at other locations in the near-field are difficult since the noise source is spatially distributed, i.e., not a point source. The noise levels at near-field locations can vary widely depending upon relative distances from each noise source (intake noise, exhaust noise, panel resonances, internal engine noise through the engine wall, etc.).

Table 1 lists the numeric/alphabetic designator used on the data pages in this report to identify the measurement location and test condition.

### RESULTS

The measured data presented in Table 2 define the sound pressure levels (SPL) produced by the KC-10A aircraft at the ground crew location. This table includes the overall, 1/3 octave band, and octave band levels. From these data one can calculate the variety of measures given in Table 3 which are widely used to assess the effects of noise on personnel and their performance.

Near-field data are for the meteorological conditions at the time of test but are valid for all typical airbase meteorology because of the short sound propagation distances involved.



**TABLE 1**

**MEASUREMENT LOCATIONS AND TEST CONDITIONS  
FOR NEAR-FIELD NOISE MEASUREMENT**

KC-10A Aircraft, Ground Runup, Wright-Patterson AFB, OH  
29 June 1982  
Tail #91946

**Ground Crew Location**

1

Telephone Talker, Under  
Aircraft by Forward  
Landing Gear

**Aircraft Engine Operation**

A

Maximum Continuous Power,  
Engine #1

**Meteorology**

Temperature

18 °C m Hg

Bar Pressure

.735 %

Rel Humidity

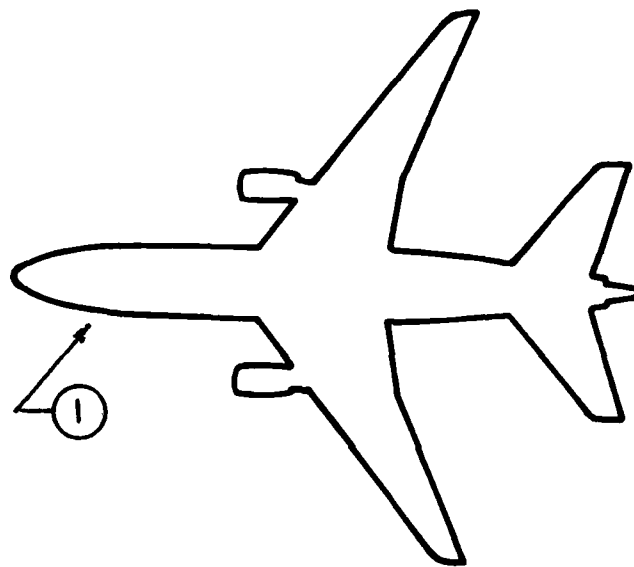
70 m/Sec (3.5 Kts)

Wind - Speed

1.8 Deg

-Direction

270



**Figure 1. Near-Field Measurement Locations on  
Taxiway 16 at Wright-Patterson AFB OH**

## FAR-FIELD NOISE

### MEASUREMENTS

AFAMRL acquired near and far-field data during a one hour test period, thus keeping similar meteorological conditions throughout the test. Figure 2 shows the ground runup pad, ground cover, aircraft orientation and the 19 microphone measurement sites on a semicircle. The center of the 100 meter radius semicircle used in surveying the CF6-50C2 engines was on the ground directly below the intersection of the aircraft's centerline and the plane passing through the wings' engines' exhaust-nozzle exits. The ground runup area did not have a blast deflector; therefore, the engines' exhausts were in a "free-flow" condition.

Table 4 provides cockpit readouts of some engine characteristics (% RPM, fuel flow, etc.) for each power setting used in the far-field tests. Also listed in this table are the surface meteorological conditions during data acquisition.

All microphone measurement sites are in the acoustic far-field of the source where the sound wavefronts spherically diverge and the noise source may be regarded as a point source. The single engine runups used engine number one, the wing engine nearest the microphones.

A portable microphone/tape-recorder system was used to sequentially record the noise at each far-field location. The microphone was attached to a hand-held pole, pointed at the source ( $0^\circ$  angle of incidence) and vertically scanned from 0.5 to 3 meters for a period of 5-10 seconds during data acquisition at each microphone location. These samples were then time-integrated to derive a root-mean-square sound pressure level. Vertical scanning and time-integrating together reduce anomalies frequently present in data acquired by a fixed height microphone.

### RESULTS

Table 5 lists the overall and 1/3 octave band SPL measured at the far-field locations under the meteorological conditions at the time of the test. Data in all other figures and tables are based on these levels. These data were normalized to 100 meters distance and standard meteorological conditions (15 C temperature, 70% relative humidity, 0.760 meter Hg barometric pressure) and used to derive the graphic data in Figure 3 which provides a compact summary of the far-field noise characteristics of the KC-10A aircraft in a standard format.

Figure 4 and Table 6 present two basic acoustic measures, the acoustic power level and the directivity index, respectively. The acoustic power level describes the power radiated by the source as a function of frequency. The directivity index is a standard acoustical engineering measure which describes the geometric way in which the source radiates this power as a function of both frequency and angle from source. These basic source measures are primarily of interest for acoustical engineers and noise generation/control specialists.

Estimates of noise characteristics for intermediate power settings (e.g., 88% engine) and/or different number of engines operating (e.g., single engine) can be determined as explained in Volume 1 of this handbook.

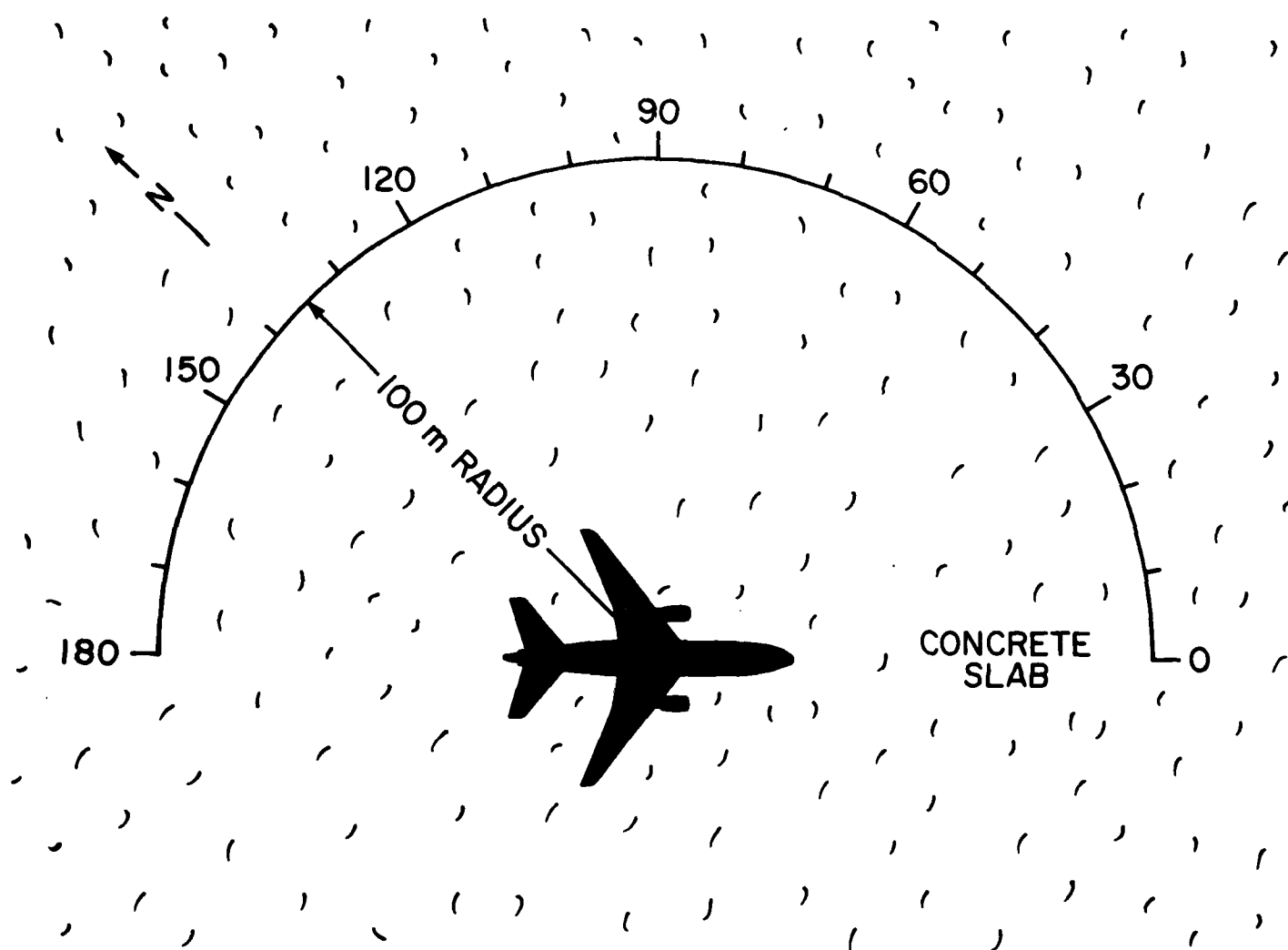


Figure 2. Far-Field Measurement Locations at  
Wright-Patterson AFB OH

Figures 5 through 11 are sets of equal noise contours describing seven different measures of noise as a function of angle and distance from the source for standard day meteorology. They are respectively, overall sound pressure level, C-weighted sound pressure level, A-weighted sound level, perceived noise level, speech interference level, permissible exposure times for personnel and octave band sound pressure levels.

No data are presented from 150 through 180 degree locations because of turbulent air flow behind the aircraft. Typical A-weighted levels for these angles are 5 to 10 dBA below the last measurement location.

Test personnel performed noise surveys during quiet periods when the background noise was minimal, e.g., early in the morning when no other aircraft or engine test stands were operating. Data eliminated because they were near the background/electronic noise were generally not significant because the levels were so low (e.g., Table 5 at idle power).

TABLE:	MEASURED SOUND PRESSURE LEVEL (DB)	IDENTIFICATION:
2	1/3 OCTAVE BAND	
NOISE SOURCE/SUBJECT:	OPERATION:	OMEGA 3.2
KC-10A AIRCRAFT		TEST BS-005-001
GROUND CREW		RUN 01
NEAR FIELD NOISE LEVELS		23 JUL 82
		PAGE F1
	LOCATION/CONDITION	
FREQ (HZ)	1/A	
25	99	
31.5	100	
40	101	
50	104	
63	104	
80	105	
100	104	
125	105	
160	104	
200	102	
250	101	
315	102	
400	103	
500	103	
630	104	
800	104	
1000	105	
1250	103	
1600	103	
2000	107	
2500	107	
3150	103	
4000	104	
5000	103	
6300	104	
8000	101	
10000	99	
OVERALL	118	
LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.		

TABLE: MEASURED SOUND PRESSURE LEVEL (DB)		IDENTIFICATION:	
2	OCTAVE BAND		
NOISE SOURCE/SUBJECT:		OPERATION:	
KC-10A AIRCRAFT			OMEGA 3-2
GROUND CREW			TEST 6S-005-001
NEAR FIELD NOISE LEVELS			RUN 01
			23 JUL 82
			PAGE J1
FREQ (HZ)		LOCATION/CONDITION	
	1/A		
31.5	105		
63	109		
125	109		
250	106		
500	108		
1000	109		
2000	111		
4000	108		
8000	106		
OVERALL	118		





**TABLE 4****TEST CONDITIONS  
FOR FAR-FIELD NOISE MEASUREMENTS**

KC-10A Aircraft, Ground Runups, Wright-Patterson AFB OH  
29 June 1982  
Tail #91946

**Aircraft Engine Operation**

Idle	Engine No. 1
	23.7 % RPM NF (Fan Speed)
	65.6 % RPM NC (Core Speed)
	406 C EGT (Exhaust Gas Temperature)
	1360 LBS/HR FF (Fuel Flow)
45% RPM	Engine No. 1
	45 % RPM NF
	81.8 % RPM NC
	445 C EGT
	2800 LBS/HR FF
70% RPM	Engine No. 1
	70 % RPM NF
	90.5 % RPM NC
	530 C EGT
	5700 LBS/HR FF
95% RPM	Engine No. 1
	95 % RPM NF
	100.6 % RPM NC
	750 C EGT
	13000 LBS/HR FF
Maximum Continuous	Engine No. 1
	103 % RPM NF
	102 % RPM NC
	820 C EGT
	1700 LBS/HR FF
Takeoff Rated Thrust	Engine No. 1
	111 % RPM NF
	106.7 % RPM NC
	908 C EGT
	20000 LBS/HR FF
45% RPM	All Three Engines
	45 % RPM NF
	81 % RPM NC
	420 C EGT
	2600 LBS/HR FF

95% RPM

All Three Engines  
95 % RPM NF  
99 % RPM NC  
745 C EGT  
13000 LBS/HR FF

**Meteorology**

Temperature  
Bar Pressure  
Rel Humidity  
Wind - Speed  
- Direction

18 C  
.735 M Hg  
70 %  
1.8 M/Sec (3.5 Kts)  
270 Deg.

TABLE: MEASURED SOUND PRESSURE LEVEL (DB)																
1/3 OCTAVE BAND																
DISTANCE = 100 METERS																
NOISE SOURCE/SUBJECT:																
KC-10A AIRCRAFT																
CF6-50C2																
FAR FIELD NOISE																
FREQ (HZ)																
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180																
ANGLE (DEGREES)																
25																
31.5																
40																
50																
63																
80																
100																
125																
150																
200																
250																
315																
400																
500																
630																
800																
1000																
1250																
1600																
2000																
2500																
3150																
4000																
5000																
6300																
8000																
10000																
OVERALL																
90 88 88 87 88 88 86 84 83 83 84 86 86 87 88																
LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.																

TABLE: MEASURED SOUND PRESSURE LEVEL (DB)		IDENTIFICATION:	
5	1/3 OCTAVE BAND	OMEGA 1.4	
DISTANCE = 100 METERS		TEST 88-005-001	
NOISE SOURCE/SUBJECT:		RUN 02	
OPERATION:		METEOROLOGY:	
( 45% RPM		TEMP = 18 C	
( ENGINE NO. 1		BAR PRESS = .735 M HG	
( FREE FLOW		REL HUMID = 70 %	
PAGE 2			
FREQ	ANGLE (DEGREES)		
(HZ)	0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180		
25	71K 71K 69K 74K 75K 74K 75K 71K 70K 71K 70K 72K 73K 75K 71K 73K		
31.5	73K 73K 69K 74K 71K 73K 76K 75K 75K 74K 75K 76K 78K 78K 79K 82K		
40	75K 74K 72K 73K 75K 77K 77K 76K 75K 79 79 80 80 82 82 82		
50	75K 72K 75K 73K 76K 75K 74K 76K 77 78 78 80 80 79 76 76		
63	76 72K 73K 73K 78K 77 76K 71 71 71 72 71 72 74 73 74 73		
80	71 70K 71 72 73 72 71 72 71 71 71 72 72 74 73 73 73		
100	73 73 74 74 74 74 73 75 73 73 74 74 74 74 77 76 74		
125	74 74 75 75 74 74 74 76 77 75 76 76 78 79 79 75		
160	75 75 74 75 75 76 77 75 76 77 75 76 78 81 79 75		
200	74 75 74 75 75 76 77 75 76 77 75 76 78 79 80 78		
250	75 76 75 77 76 77 75 75 76 72 73 74 77 77 75 75		
315	82 82 81 82 82 81 80 75 75 75 72 73 75 76 79 75		
400	81 77 76 77 76 75 73 69 87 65K 67 68 70 70 67		
500	82 83 78 78 78 78 73 70 68 65K 68 68 72 70 68		
630	91 97 87 86 89 91 83 79 77 70 71 72 75 72 71		
800	81 82 81 81 82 80 75 73 70 70 72 73 76 73 70		
1000	80 79 79 80 80 80 78 76 74 74 77 78 85 80 75		
1250	82 82 80 80 81 82 76 73 70 68 70 72 74 74 72		
1600	83 81 80 79 79 80 77 74 71 68 67 69 70 70 68		
2000	76 77 75 76 77 77 74 71 66 64 65 67 69 68 65		
2500	72 72 72 73 73 73 71 66 64 65 67 69 68 65 63		
3150	70 70 69 70 70 70 68 63 63 65 67 68 69 66 63		
4000	94 98 92 92 93 94 90 88 87 88 89 91 91 90		
5000			
6300			
8000			
10000			
OVERALL			

< LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.

TABLE: MEASURED SOUND PRESSURE LEVEL (DB)																		IDENTIFICATION:	
1/3 OCTAVE BAND																			
5																		OMEGA 1.4	
DISTANCE = 100 METERS																		TEST 88-005-001	
NOISE SOURCE/SUBJECT:																		METEOROLOGY:	
( OPERATION:																		TEMP = 18 C	
( 70X RPM																		BAR PRESS = .735 M HG	
( ENGINE NO. 1																		REL HUMID = 70 X	
( FREE FLOW																		PAGE 2	
FREQ																		ANGLE (DEGREES)	
( HZ)																			
	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180
25	73K	73K	74K	74K	73K	77K	79K	78K	79K	79K	81	81	81	84	84				
31.5	72K	72K	74K	72K	74K	77K	77K	76K	77K	78K	81K	80K	82	86	88				
40	73K	74K	74K	74K	76K	75K	77K	78K	80K	83	83	84	83	86	87				
50	75K	76K	75K	76K	77K	78K	78K	79K	80K	81	83	84	86	88	89				
63	76K	76K	75K	77K	77K	77K	80K	80K	81K	83	84	84	87	88	89				
80	79K	78K	78K	78K	79K	81K	80K	82K	82K	84	86	87	88	89	90				
100	80K	79K	81K	80K	80K	80K	80K	81K	82K	83	85	86	87	88	89				
125	80K	79K	80K	79K	80K	80K	81K	80K	81K	82K	84	85	86	87	87K				
160	78K	78K	80K	78K	80K	79K	79K	79K	80K	82K	82K	84	84	86	84				
200	78K	78K	79K	80K	80K	78K	79K	78K	78K	80K	80K	82K	83K	84	83K				
250	82K	80K	82K	80K	80K	80K	79K	79K	79K	80K	81K	85K	85K	84K	83K				
315	78K	78K	80K	80K	80K	80K	79K	79K	80K	81K	82K	83K	86K	83K	82K				
400	78K	78K	79K	80K	81K	82K	81K	79K	80K	81K	83K	84K	85K	83K	80K				
500	80K	79K	80K	80K	81K	80K	81K	78K	80K	79K	82K	84K	86K	82K	80K				
630	79K	79K	80K	80K	81K	79K	81K	77K	78K	79K	80K	82K	85K	81K	80K				
800	77K	78K	78K	80K	81K	78K	79K	75K	76K	77K	78K	80K	82K	80K	78K				
1000	78K	79K	80K	80K	81K	78K	79K	75K	75K	75K	75K	77K	78K	77K	73K				
1250	82K	82K	83K	83K	84K	81K	82K	78K	75K	75K	75K	77K	78K	80K	77K				
1600	90K	90K	91K	90K	92K	90K	89K	85K	82K	79K	78K	80K	82K	80K	77K				
2000	81K	82K	83K	81K	83K	80K	80K	77K	74K	74K	74K	77K	77K	75K	73K				
2500	84K	85K	86K	84K	85K	84K	83K	77K	76K	76K	76K	78K	78K	76K	73K				
3150	93K	95K	95K	90K	93K	91K	89K	85K	82K	80K	81K	82K	84K	83K	79K				
4000	84K	85K	86K	86K	88K	89K	90K	84K	82K	82K	82K	83K	84K	80K	76K				
5000	85K	86K	86K	86K	89K	89K	91K	86K	86K	81K	82K	84K	86K	82K	79K				
6300	83K	84K	84K	84K	86K	85K	87K	82K	81K	79K	77K	79K	80K	78K	74K				
8000	80K	81K	81K	81K	83K	83K	84K	78K	76K	75K	73K	75K	73K	75K	70K				
10000	78K	78K	79K	78K	81K	80K	82K	76K	74K	72K	71K	73K	73K	71K	67K				
OVERALL	97	98	99	97	99	98	98	95	94	94	96	97	98	98	98				
LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.																			

TABLE: MEASURED SOUND PRESSURE LEVEL (DB)																								
1/3 OCTAVE BAND																								
DISTANCE = 100 METERS																								
NOISE SOURCE/SUBJECT:										OPERATION:					METEOROLOGY:					IDENTIFICATION:				
										( 95X RPM					( TEMP = 18 C					( OMEGA 1.4				
( KC-10A AIRCRAFT										( ENGINE NO. 1					( BAR PRESS = .735 M HG					( TEST BS-005-001				
( FAR FIELD NOISE										( FREE FLOW					( REL HUMID = 70 %					( RUN 04				
																				( 26 JUL 82				
																				( PAGE 2				
ANGLE (DEGREES)																								
FREQ (HZ)	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180					
25	78	81	81	81	83	86	85	86	86	87	85	88	90	94	99									
31.5	82	82	83	82	86	86	85	86	88	88	89	90	95	97	101									
40	82	84	83	84	87	86	86	86	88	89	92	94	97	101	103									
50	86	87	85	88	87	87	87	90	90	92	94	96	99	102	105									
63	85	87	85	88	87	86	87	89	91	93	95	96	100	104	103									
80	87	88	86	87	88	89	89	90	91	93	96	98	100	104	104									
100	86	87	87	89	89	89	90	91	92	93	96	98	99	103	102									
125	86	87	89	89	89	90	91	91	92	93	96	98	100	102	101									
160	85	86	88	88	89	89	90	90	92	93	96	98	100	101	99									
200	84	85	86	88	89	89	89	90	91	92	94	96	99	99	97									
250	83	84	85	86	88	88	88	89	90	91	92	93	95	97	98	94								
315	83	84	86	87	88	88	88	89	91	91	94	95	96	97	92									
400	86	87	91	90	92	92	91	93	92	93	94	95	96	96	91									
500	84	85	90	89	88	89	89	90	89	91	92	94	96	94	89									
630	84	85	88	89	90	90	90	89	89	90	91	93	94	94	88									
800	84	85	87	88	88	90	89	87	86	87	90	91	92	92	87									
1000	85	86	89	89	90	90	87	86	85	85	88	90	91	90	85									
1250	87	88	88	89	89	88	86	86	84	84	87	88	89	89	84									
1600	88	88	90	92	91	89	87	87	85	85	86	88	89	88	81									
2000	93	96	98	98	96	96	92	91	88	87	87	90	92	89	82									
2500	87	89	90	91	90	90	88	87	84	84	86	87	88	86	79									
3150	86	88	89	90	90	89	86	86	84	84	86	87	88	85	79									
4000	90	92	93	93	92	91	87	88	86	85	87	90	93	86	80									
5000	86	88	89	90	89	89	86	86	86	85	86	89	89	85	79									
6300	86	87	88	89	89	88	86	86	85	87	91	93	94	89	82									
8000	83	84	85	86	86	85	83	84	81	83	87	88	88	85	79									
10000	80	81	82	83	83	82	80	80	77	79	82	84	84	80	76									
OVERALL	101	102	103	104	104	104	102	103	103	104	106	108	110	112	112									
LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.																								

< LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.



TABLE: MEASURED SOUND PRESSURE LEVEL (DB)																			
1/3 OCTAVE BAND																			
DISTANCE = 100 METERS																			
NOISE SOURCE/SUBJECT:																			
( OPERATION:																			
( KC-10A AIRCRAFT																			
( CF6-50C2																			
( FAR FIELD NOISE																			
) METEOROLOGY:																			
) TEMP = 18 C																			
) BAR PRESS = .735 M HG																			
) REL HUMID = 70 %																			
) PAGE 2																			
) IDENTIFICATION:																			
) OMEGA 1.4																			
) TEST 85-005-001																			
) RUN 06																			
) 26 JUL 82																			
) 180																			
) 170																			
) 160																			
) 150																			
) 140																			
) 130																			
) 120																			
) 110																			
) 100																			
) 90																			
) 80																			
) 70																			
) 60																			
) 50																			
) 40																			
) 30																			
) 20																			
) 10																			
) 0																			
) FREQ																			
( HZ)																			
) 25																			
) 31.5																			
) 40																			
) 50																			
) 63																			
) 80																			
) 100																			
) 125																			
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) 630																			
) 800																			
) 1000																			
) 1250																			
) 1600																			
) 2000																			
) 2500																			
) 3150																			
) 4000																			
) 5000																			
) 6300																			
) 8000																			
) 10000																			
) OVERALL																			
) 121																			
) 116																			
) 112																			
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) 1																			
) 0																			

LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.



TABLE: MEASURED SOUND PRESSURE LEVEL (DB)																			
1/3 OCTAVE BAND																			
DISTANCE = 100 METERS																			
NOISE SOURCE/SUBJECT:																			
OPERATION:																			
KC-10A AIRCRAFT																			
CF6-SOC2																			
FAR FIELD NOISE																			
METEOROLOGY:																			
TEMP = 18 C																			
BAR PRESS = .735 M HG																			
REL HUMID = 70 %																			
PAGE 2																			
IDENTIFICATION:																			
OMEGA 1.4																			
TEST BS-005-001																			
RUN 07																			
26 JUL 82																			
PAGE 2																			
ANGLE (DEGREES)																			
FREQ (HZ)	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180
25		71<	71<	72<	69<	70<	70<	71<	69<	71<	71<	75<	74<	75<	74<				
31.5		72<	71<	73<						71<	73<	77<	77<	77<	76<	76<			
40	71<	75<	72<	76<	72<	72<	72<	73<	73<	75<	76<	76<	77<	78<	80<				
50	76<	77<	74<	78<	77<	77<	77<	76<	77<	78<	80<	80<	81<	81<	85<				
63	77<	75<	75<	76<	75<	76<	77<	78<	78<	80<	80<	81<	83<	82<	84<				
80	79	78<	76<	75<	76<	77<	77<	78<	78<	80<	81<	82<	83<	83<	85<				
100	78	77	78	76<	75<	76<	75<	76<	78	77	79	79	82	82	82				
125	77	79	78	79	77	78	79	79	79	78	79	79	78	80	81				
160	73	73	74	73	74	73	74	74	73	74	75	75	75	76	77				
200	75	74	76	74	74	74	73	73	72	73	74	74	75	75	76				
250	76	77	76	76	75	75	74	75	75	76	76	76	79	78	78				
315	77	77	78	76	76	76	75	76	75	78	79	79	80	80	79				
400	78	79	78	75	77	78	76	76	77	78	79	79	82	80	79				
500	79	78	79	76	78	79	76	77	75	77	79	80	81	81	80				
630	79	79	79	77	79	78	76	76	74	75	76	78	81	82	80				
800	82	79	80	76	79	79	76	76	73	73	74	76	79	80	80				
1000	93	85	85	82	82	83	81	81	75	75	74	76	78	79	80				
1250	84	82	81	78	78	78	75	75	70	70	70	70	71	73	72				
1600	84	83	82	79	79	79	76	75	70	70	70	70	72	74	73				
2000	94	95	91	91	88	91	87	85	79	76	76	74	75	76	75				
2500	84	85	85	84	83	82	80	77	73	73	74	75	77	78	76				
3150	84	84	84	83	82	83	82	80	76	77	77	80	83	84	83				
4000	84	85	84	82	81	82	80	79	74	73	72	73	75	77	77				
5000	86	85	84	81	81	82	82	81	76	74	72	72	73	77	77				
6300	80	80	80	78	78	79	79	77	72	70	69	70	71	74	74				
8000	76	76	76	74	74	74	74	72	67	67	68	69	69	72	71				
10000	74	74	74	71	71	71	71	68	64	66	68	69	70	72	71				
OVERALL	98	98	96	95	94	95	93	92	89	90	91	91	93	93	94				
< LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE																			

< LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.

TABLE: MEASURED SOUND PRESSURE LEVEL (DB)																			IDENTIFICATION:	
1/3 OCTAVE BAND																				
5																			OMEGA 1.4	
DISTANCE = 100 METERS																			TEST 8S-005-001	
NOISE SOURCE/SUBJECT:																			RUN 08	
OPERATION:																				
KC-10A AIRCRAFT																			TEMP = 18 C	
CF6-50C2																			BAR PRESS = .735 M HG	
FAR FIELD NOISE																			REL HUMID = 70 %	
																			PAGE 2	
FREQ (HZ)																			ANGLE (DEGREES)	
	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	
25	83	83	83	84	85	86	88	88	89	89	90	91	92	96	98					
31.5	85	85	85	86	86	88	88	88	89	90	91	93	97	97	102					
40	86	86	86	87	88	88	88	89	91	92	95	95	96	100	103					
50	89	89	87	90	89	89	90	91	92	94	96	98	99	102	106					
63	90	90	88	89	90	89	90	93	94	95	97	98	101	104	106					
80	91	90	90	90	90	90	91	92	94	95	98	99	101	104	107					
100	90	90	91	92	92	91	93	93	94	95	98	99	101	105	104					
125	89	91	92	92	92	92	93	94	94	95	97	99	101	104	103					
160	88	90	91	92	92	92	92	93	94	95	97	99	100	103	103					
200	87	88	89	90	91	90	91	92	93	94	96	98	100	101	100					
250	86	87	88	89	89	90	91	92	92	93	94	96	99	100	98					
315	86	88	88	89	90	89	91	91	92	93	94	96	97	99	97					
400	90	90	93	90	93	90	95	93	92	95	95	96	97	98	95					
500	90	93	90	90	92	89	92	92	92	93	93	95	96	96	93					
630	87	89	90	90	92	91	92	92	91	91	92	94	95	95	92					
800	89	89	91	90	90	90	92	92	90	90	91	93	94	93	90					
1000	90	91	90	90	92	88	91	90	89	88	89	91	93	92	89					
1250	90	91	92	91	91	89	90	89	88	88	88	90	91	91	89					
1600	93	93	94	94	92	90	91	90	88	88	88	90	91	91	88					
2000	99	99	100	100	98	97	97	94	92	91	90	92	93	94	92					
2500	91	92	93	92	92	91	92	90	88	88	87	89	90	90	87					
3150	90	92	92	91	91	90	91	89	88	87	87	89	90	90	87					
4000	96	96	96	95	94	93	91	90	89	88	89	93	93	94	91					
5000	91	91	92	90	90	90	89	88	87	89	89	90	91	91	87					
6300	89	90	91	90	90	89	89	88	87	89	91	93	95	96	91					
8000	86	87	88	87	87	86	86	85	84	86	87	89	91	92	88					
10000	83	84	85	83	83	83	83	82	80	81	82	85	86	88	84					
OVERALL	105	105	106	106	106	105	106	105	105	106	108	110	111	114	114					
LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.																				

LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.

[illegible]

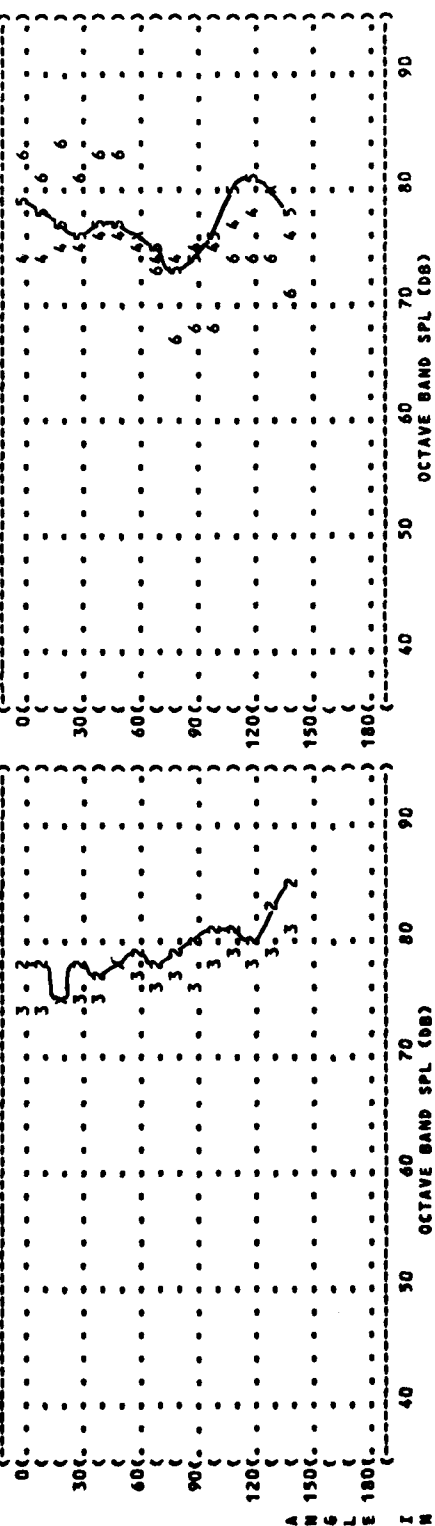
NOTES ON THE SUBMISSION OF MANUSCRIPTS

( KC-10A ATGCRABST )  
 ( TOTAL POWER 23-7% DOWN )  
 ( TEMP = 15 C )  
 ( RAO PRESS = -760 MM HG )  
 ( 24 JUL 82 )

( CF6-50C2 ) ( ENGINE NO. 1 ) ( REL HUMID = 70 % )  
( FAR FIELD NOISE ) ( FREE FLOW ) ( PAGE 6 )

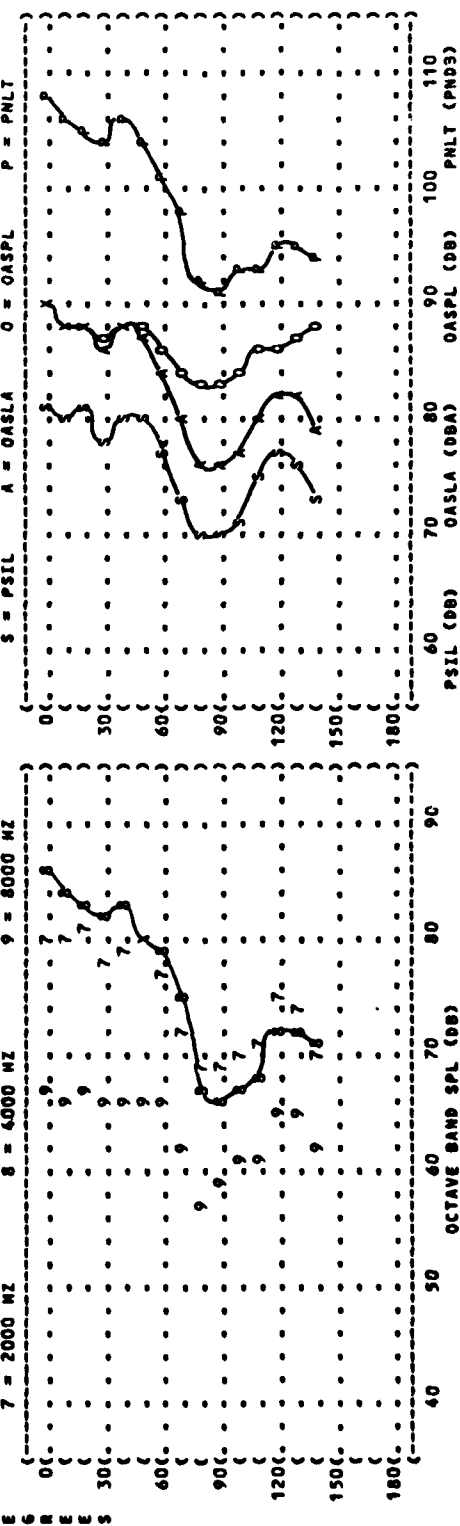
(-----1-----2-----3-----4-----5-----6-----)

(.....) { ..... } 0(.....) 0(.....)



D  
E  
F

7 = 2000 MZ      8 = 4000 MZ      9 = 8000 MZ      S = PSIL      A = OASLA      O = OASPL      P = PNLT



( FIGURE: NORMALIZED FARFIELD NOISE LEVELS  
 ( 3  
 ( DISTANCE = 100 METERS  
 ( NOISE SOURCE/SUBJECT:  
 ( KC-10A AIRCRAFT  
 ( CF6-50C2  
 ( FAR FIELD NOISE  
 ( OPERATION:  
 ( 45% RPM  
 ( ENGINE NO. 1  
 ( FREE FLOW  
 ( METEOROLOGY:  
 ( TEMP = 15 C  
 ( BAR PRESS = -760 M HG  
 ( REL HUMID = 70 %  
 ( PAGE 6  
 ( IDENTIFICATION:  
 ( OMEGA 1-4  
 ( TEST BS-005-001  
 ( RUN 02  
 ( 26 JUL 82  
 ( )

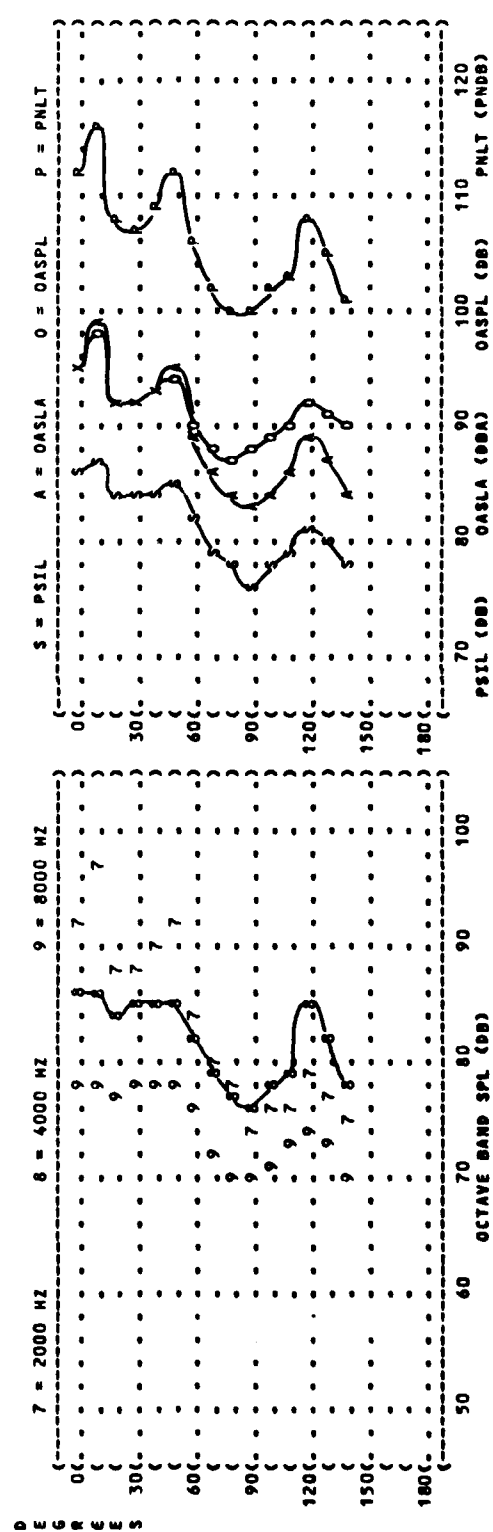
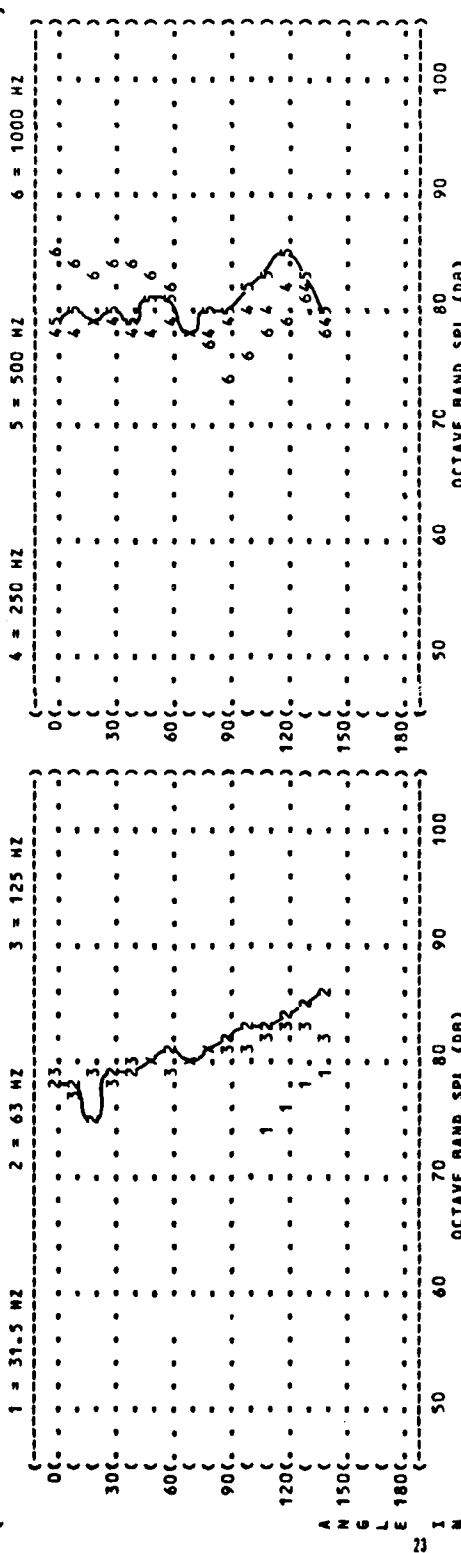




FIGURE: NORMALIZED FARFIELD NOISE LEVELS

3 DISTANCE = 100 METERS

NOISE SOURCE/SUBJECT: KC-10A AIRCRAFT  
ENGINE NO. 1  
CF6-50C2  
FAR FIELD NOISE

OPERATION: 95% RPM  
FREE FLOW

METEOROLOGY: TEMP = 15 C  
BAR PRESS = -760 MM HG  
REL HUMID = 70 %

IDENTIFICATION: OMEGA 1.4  
TEST BS-0C5-0C1  
RUN 04  
26 JUL 82  
PAGE 6

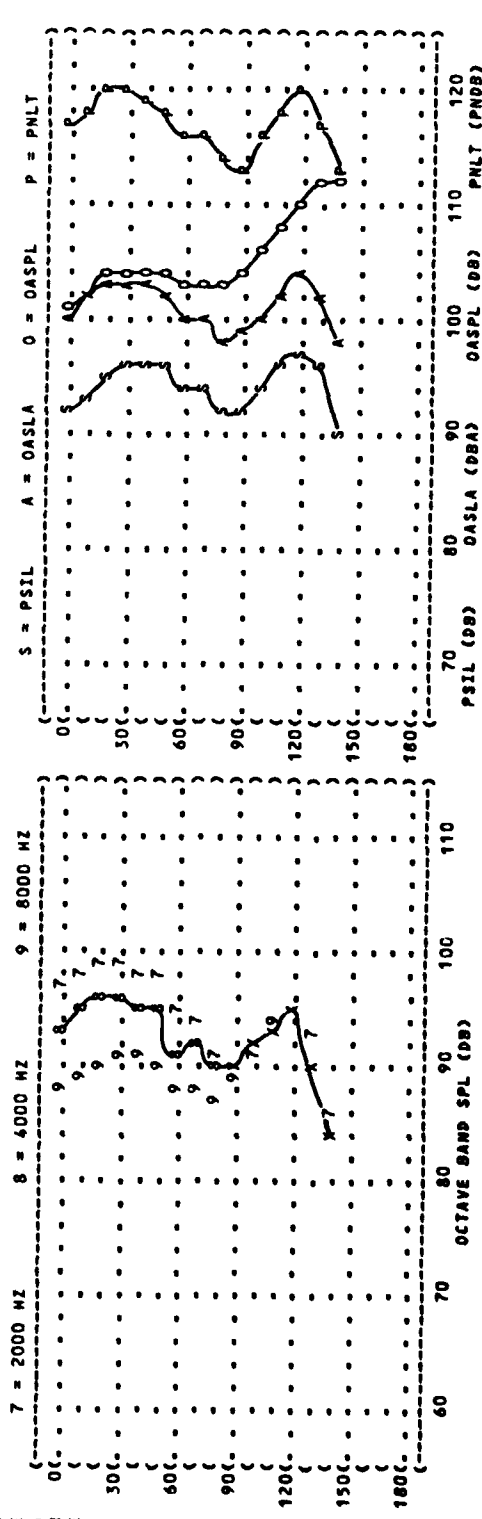
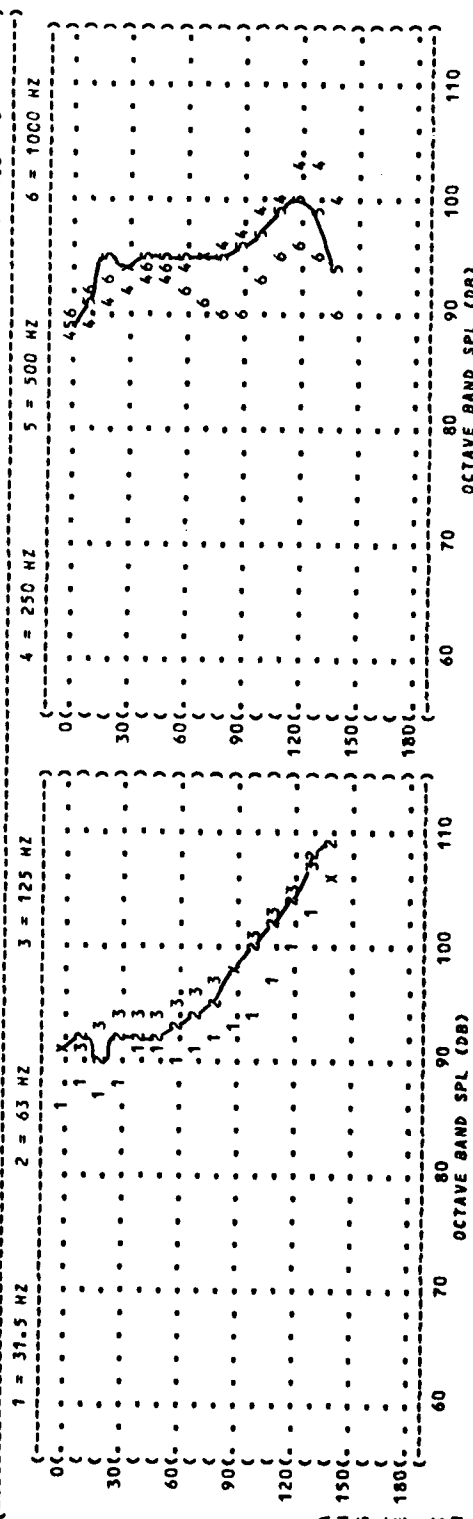


FIGURE: NORMALIZED FARFIELD NOISE LEVELS

3 DISTANCE = 100 METERS

IDENTIFICATION:

OMEGA 1-4

TEST 85-005-001

RUN 05

26 JUL 82

PAGE 6

NOISE SOURCE/SUBJECT:

OPERATION:

MAXIMUM CONTINUOUS POWER

ENGINE NO. 1

FREE FLOW

METEOROLOGY:

TEMP = 15 C

BAR PRESS = 740 M HG

REL HUMID = 70 %

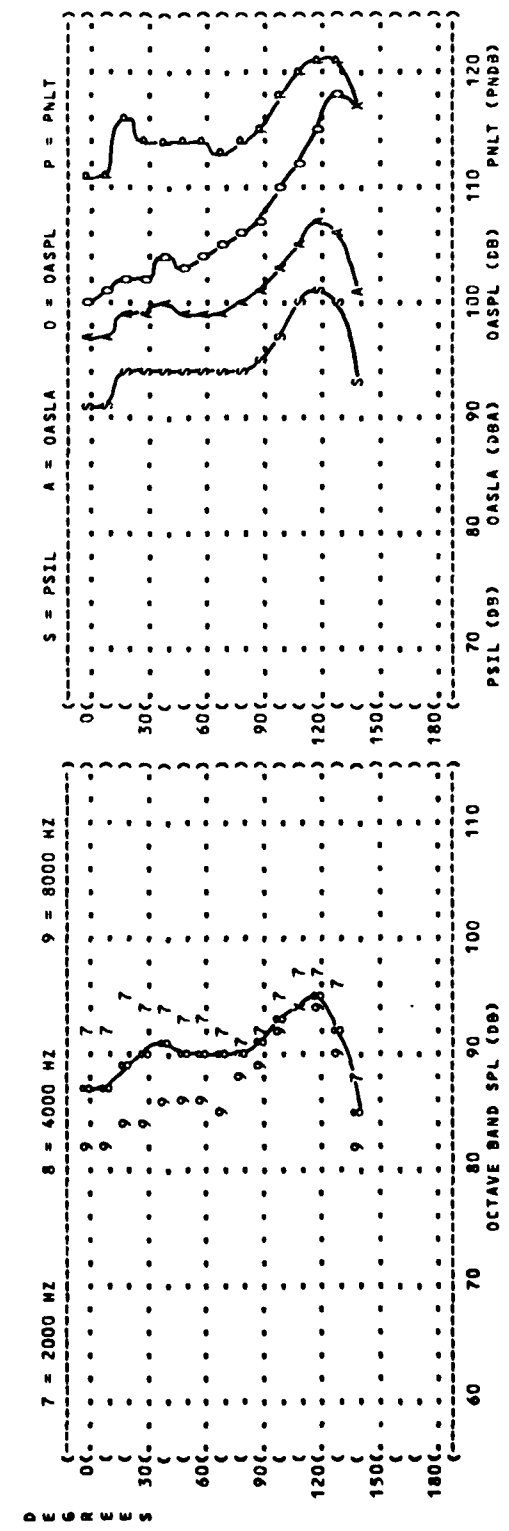
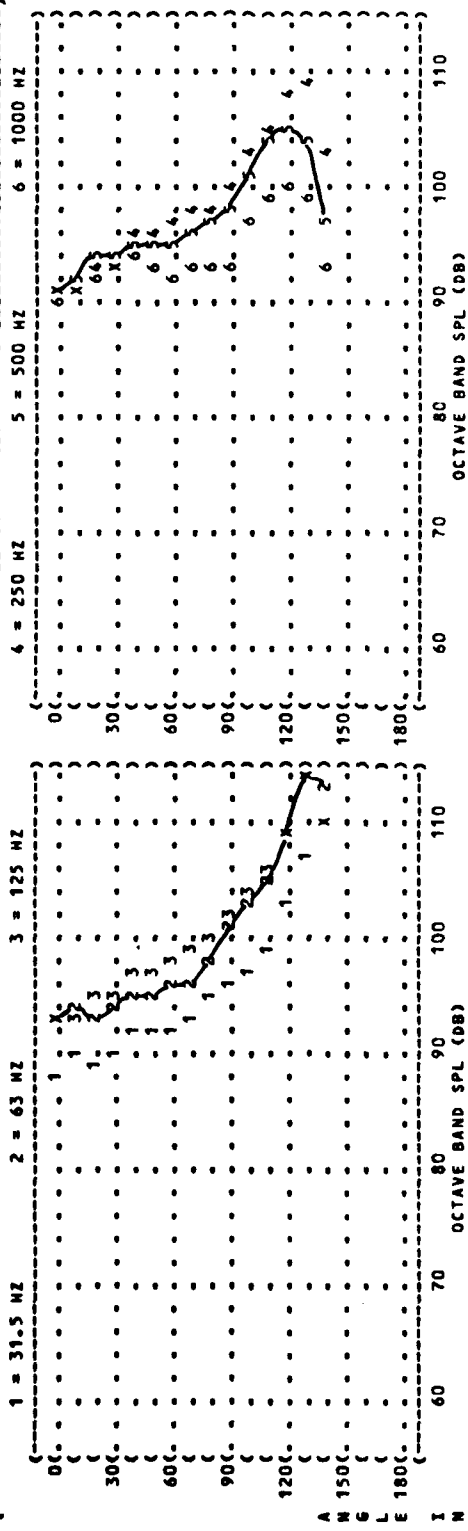


FIGURE: NORMALIZED FARFIELD NOISE LEVELS

3 DISTANCE = 100 METERS

NOISE SOURCE/SUBJECT:

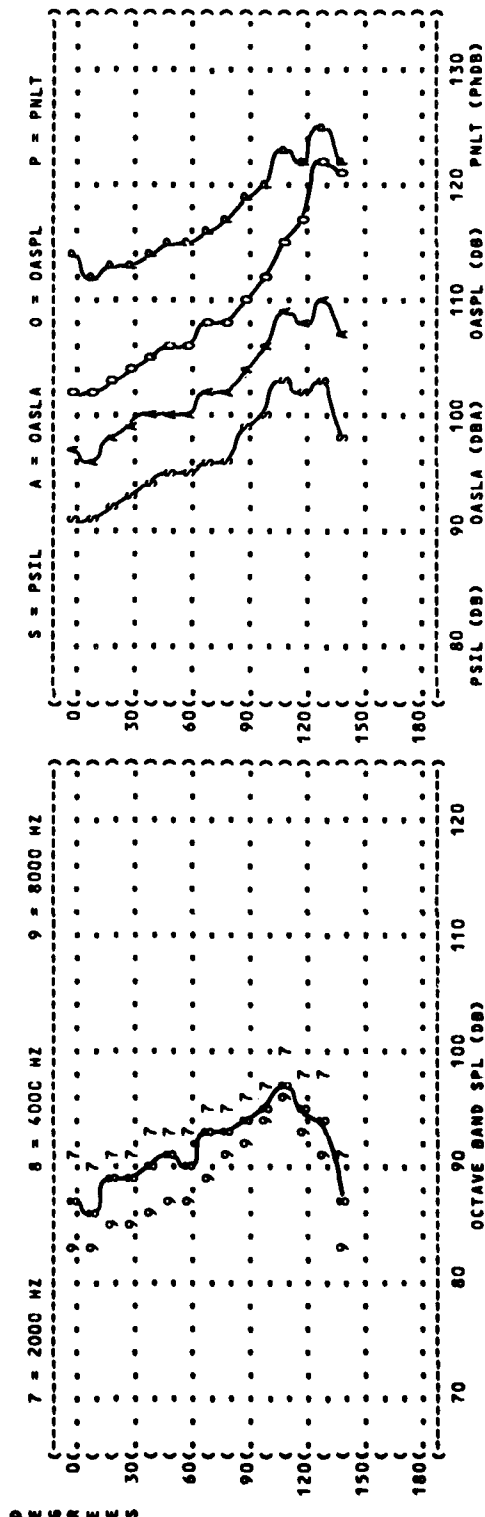
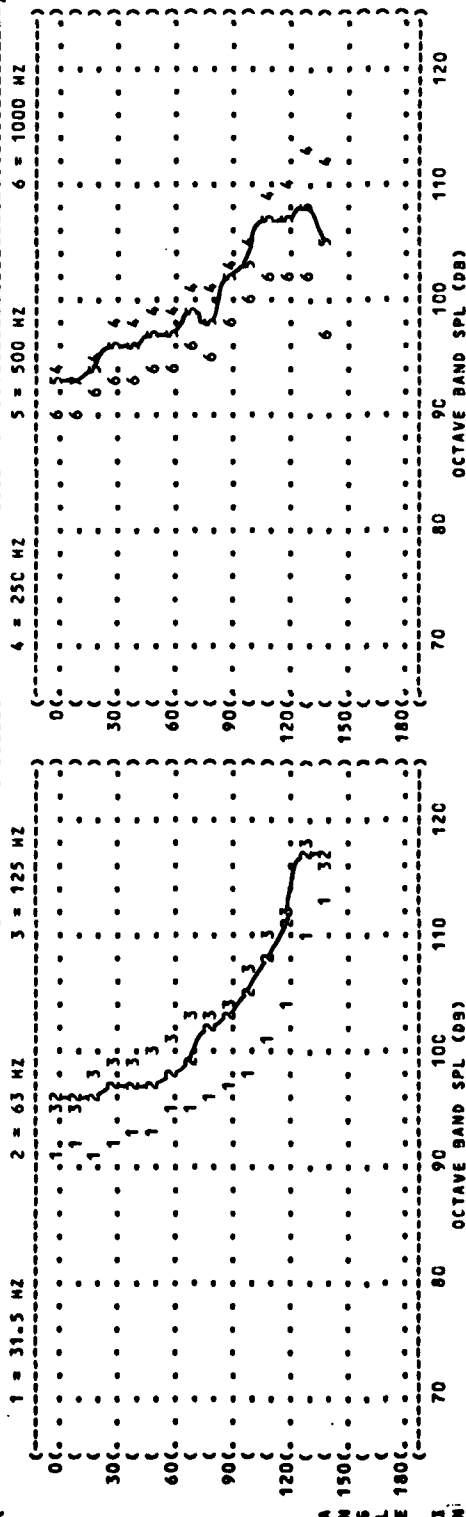
OPERATION:

KC-10A AIRCRAFT  
 CF6-50C2  
 FAR FIELD NOISE

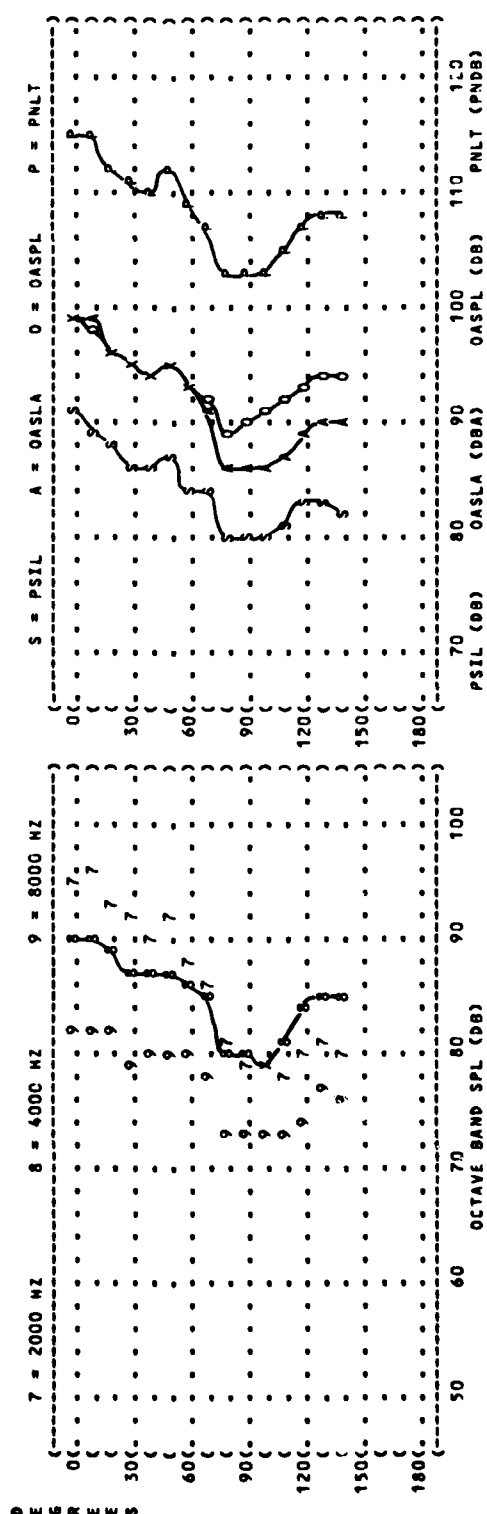
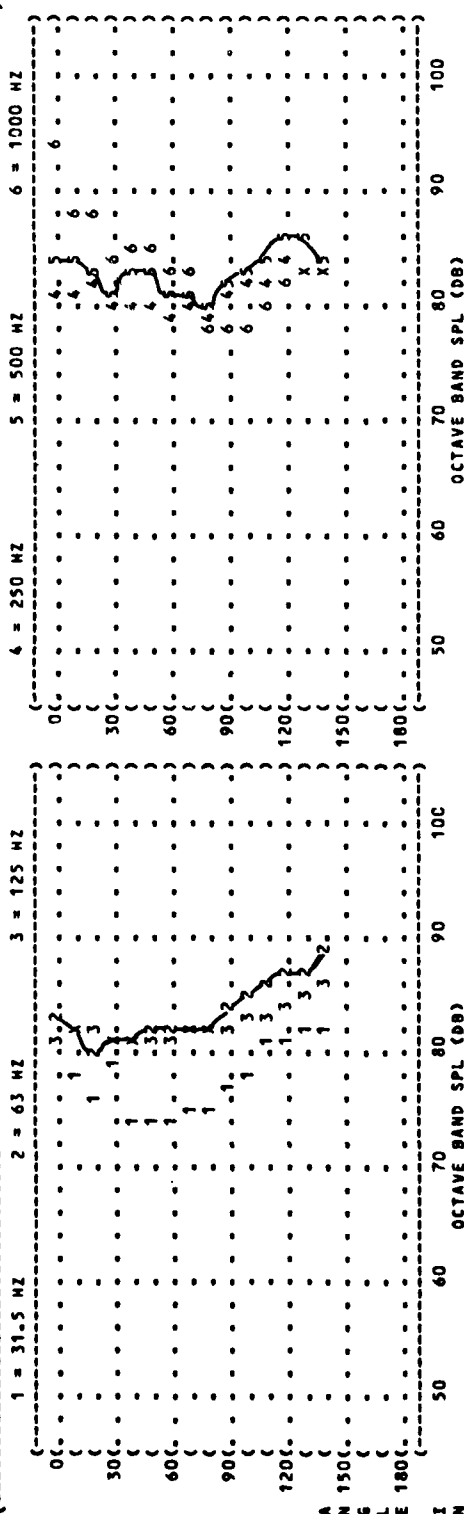
TAKEOFF RATED THRUST  
 ENGINE NO. 1  
 FREE FLOW

METEOROLOGY:  
 TEMP = 15 C  
 BAR PRESS = 760 M HG  
 REL HUMID = 70 %

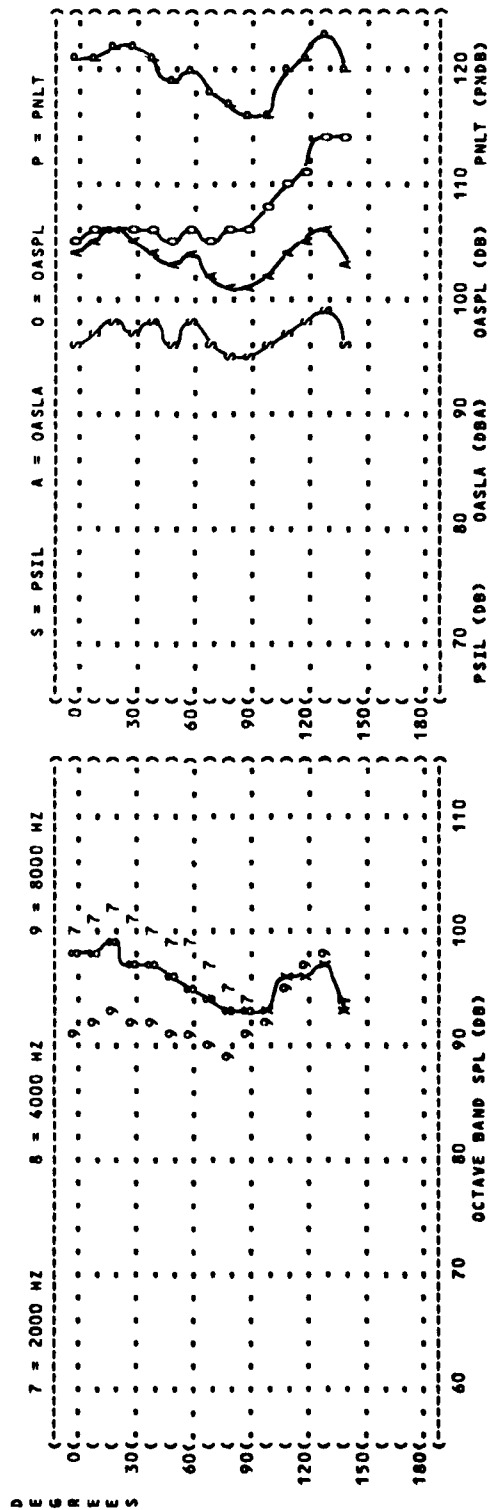
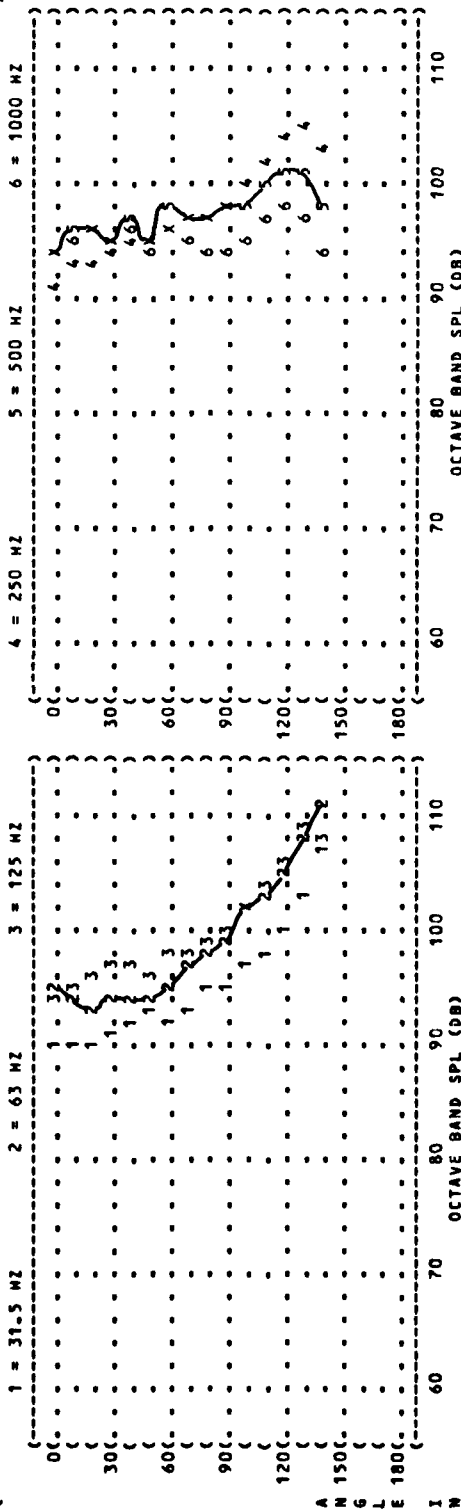
IDENTIFICATION:  
 OMEGA 1.4  
 TEST BS-005-001  
 RUN 06  
 26 JUL 82  
 PAGE 6





[illegible]

( FIGURE: NORMALIZED FARFIELD NOISE LEVELS  
 ( 3  
 ( DISTANCE = 100 METERS  
 ( NOISE SOURCE/SUBJECT:  
 ( KC-10A AIRCRAFT  
 ( CF6-50C2  
 ( FAR FIELD NOISE  
 ( OPERATION:  
 ( 95% RPM ALL ENGINES  
 ( FREE FLOW  
 ( METEOROLOGY:  
 ( TEMP = 15 C  
 ( BAR PRESS = .760 M HG  
 ( REL HUMID = 70 %  
 ( IDENTIFICATION:  
 ( OMEGA 1-4  
 ( TEST 85-005-001  
 ( RUN 08  
 ( 26 JUL 82  
 ( PAGE 6



( ( FIGURE: ACOUSTIC POWER LEVEL (PWL) ) )  
 ( ( 4 ) )  
 ( ( NOISE SOURCE/SUBJECT: ( OPERATION: ) METEOROLOGY: ) )  
 ( ( KC-10A AIRCRAFT ( IDLE POWER 23.7% RPM ) TEMP = 18 C ) )  
 ( ( CFS-50C2 ( ENGINE NO. 1 ) BAR PRESS = .735 M HG ) )  
 ( ( FAR FIELD NOISE ( FREE FLOW ) REL HUMID = 70 X ) )  
 ( ( IDENTIFICATION: ) )  
 ( ( OMEGA 1.4 ) )  
 ( ( TEST BS-005-001 ) )  
 ( ( RUN 01 ) )  
 ( ( 26 JUL 82 ) )  
 ( ( PAGE 3 ) )

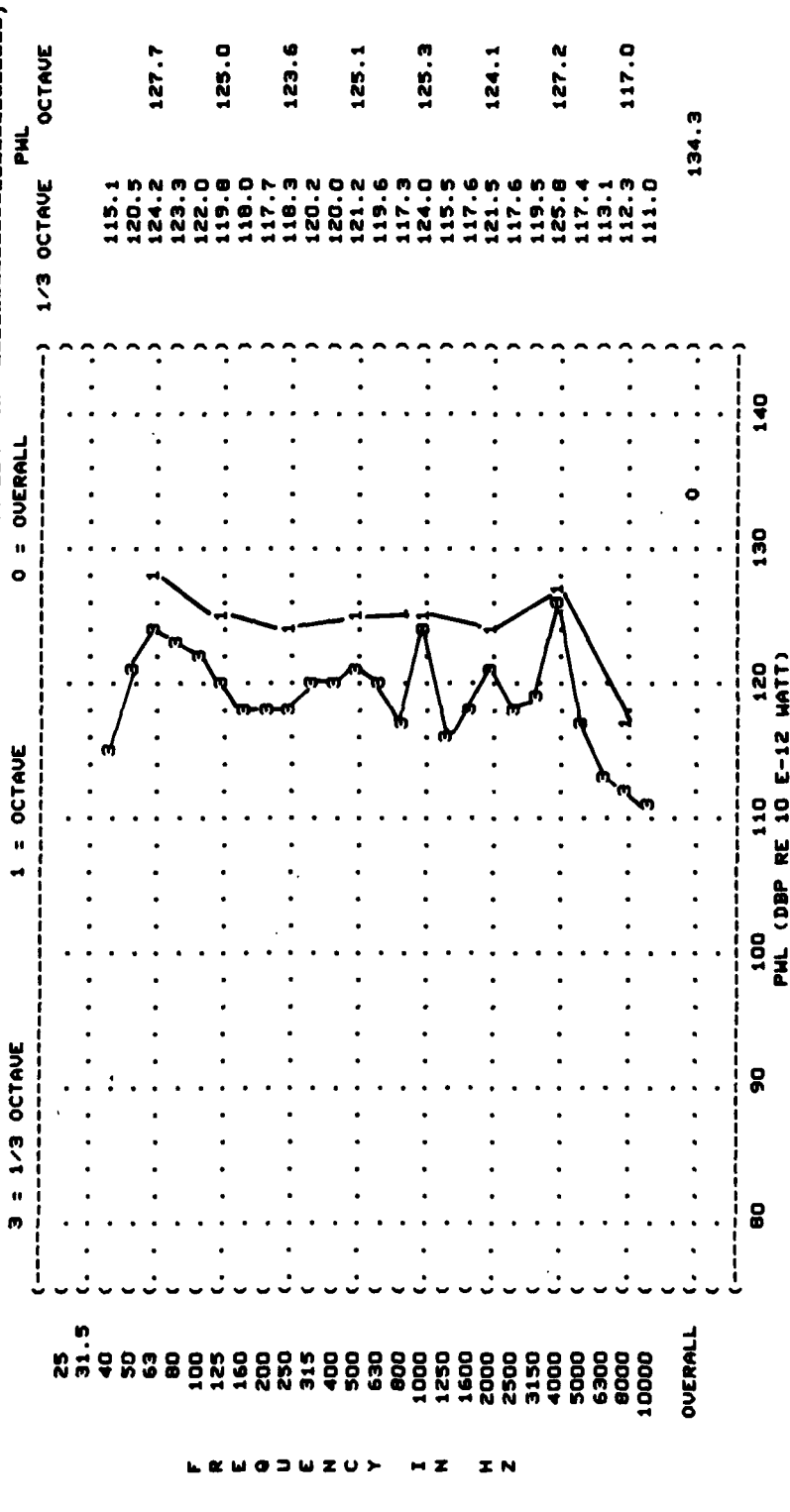


FIGURE: ACOUSTIC POWER LEVEL (PWL)

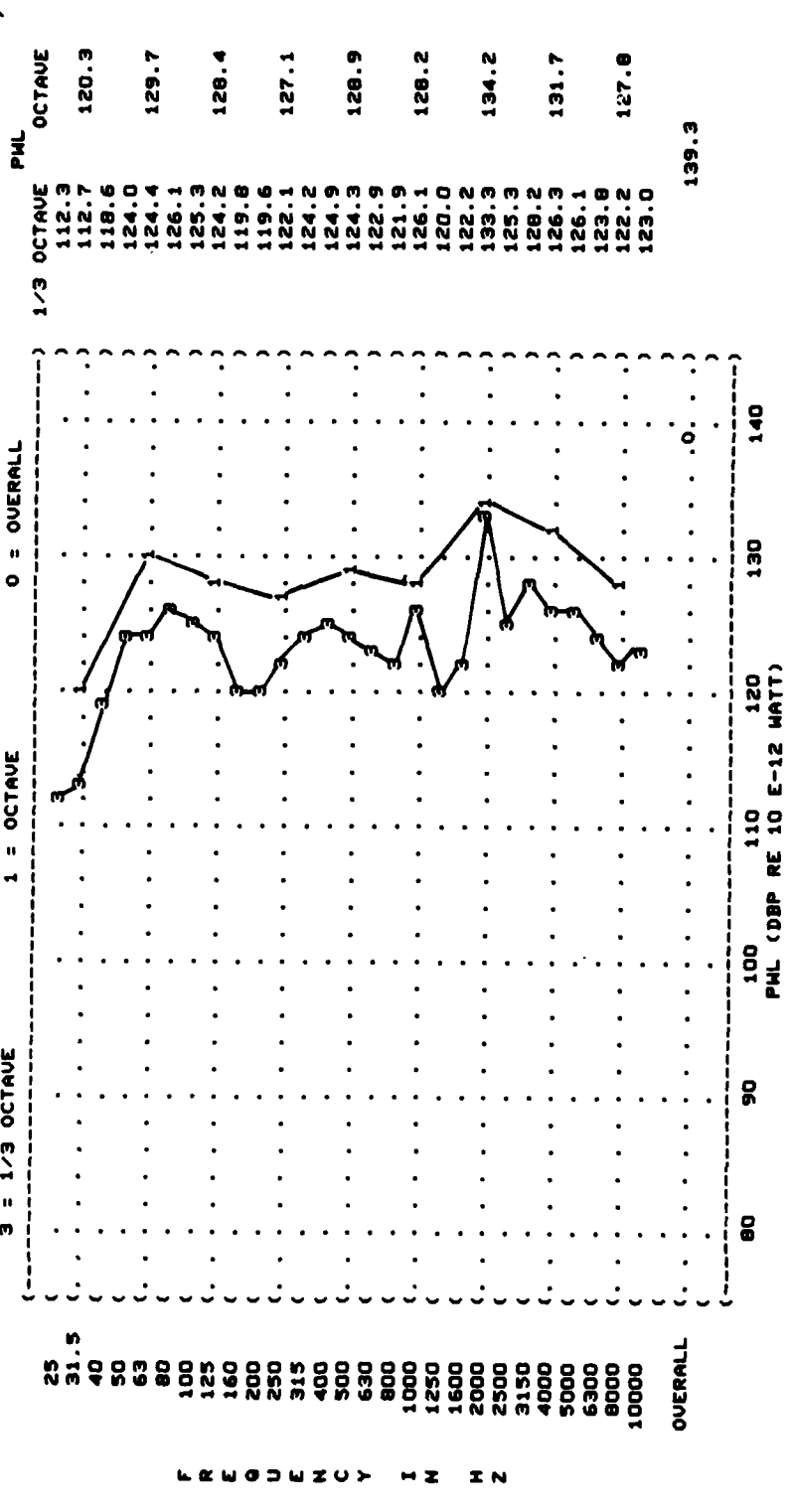
4

IDENTIFICATION:  
 OMEGA 1.4  
 TEST BS-005-001  
 RUN 02  
 26 JUL 82  
 PAGE 3

NOISE SOURCE/SUBJECT: KC-10A AIRCRAFT  
 CF6-50C2  
 FAR FIELD NOISE

OPERATION:  
 45X RPM  
 ENGINE NO. 1  
 FREE FLOW

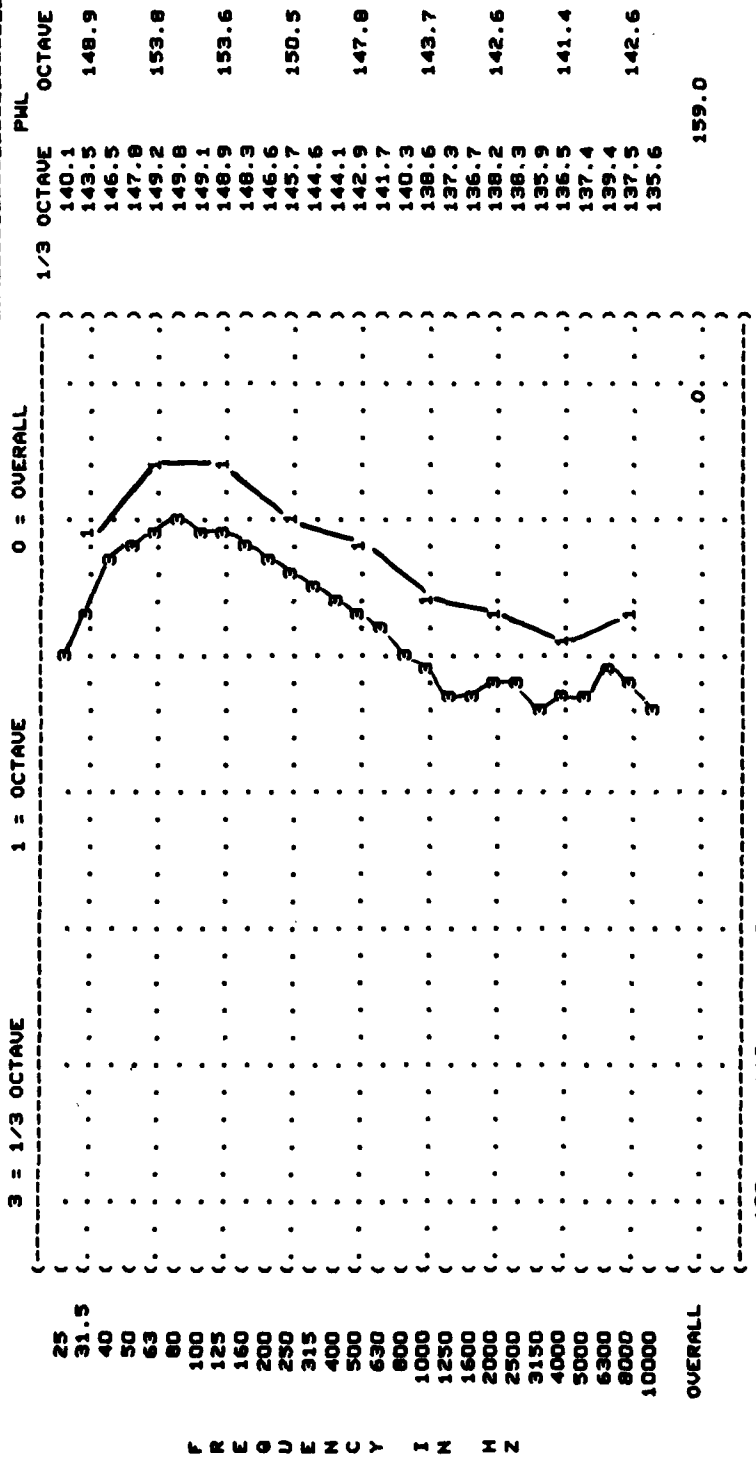
METEOROLOGY:  
 TEMP = 18 C  
 BAR PRESS = .735 M HG  
 REL HUMID = 70 %







( FIGURE: ACOUSTIC POWER LEVEL (PNL)  
 ( 4  
 ( ) IDENTIFICATION:  
 ( ) OMEGA 1.4  
 ( ) TEST BS-005-001  
 ( ) RUN 05  
 ( ) NOISE SOURCE/SUBJECT: ( OPERATION: ) METEOROLOGY:  
 ( ) KC-10A AIRCRAFT ( ) TEMP = 18 C  
 ( ) CF6-50C2 ( ) MAXIMUM CONTINUOUS POWER ( ) BAR PRESS = .735 M HG  
 ( ) FAR FIELD NOISE ( ) ENGINE NO. 1 ( ) REL HUMID = 70 %  
 ( ) FREE FLOW ( ) PAGE 3



RE: ACOUSTIC POWER LEVEL [PWL]

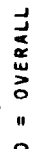




FIGURE: ACOUSTIC POWER LEVEL (PWL)

4

IDENTIFICATION:

OMEGA 1.4

TEST BS-005-001

RUN 07

NOISE SOURCE/SUBJECT:

OPERATION:

METEOROLOGY:

TEMP = 18 C

45X RPM ALL ENGINES

BAR PRESS = .735 M HG

CF6-50C2

FREE FLOW

REL HUMID = 70 X

FAR FIELD NOISE

PAGE 3

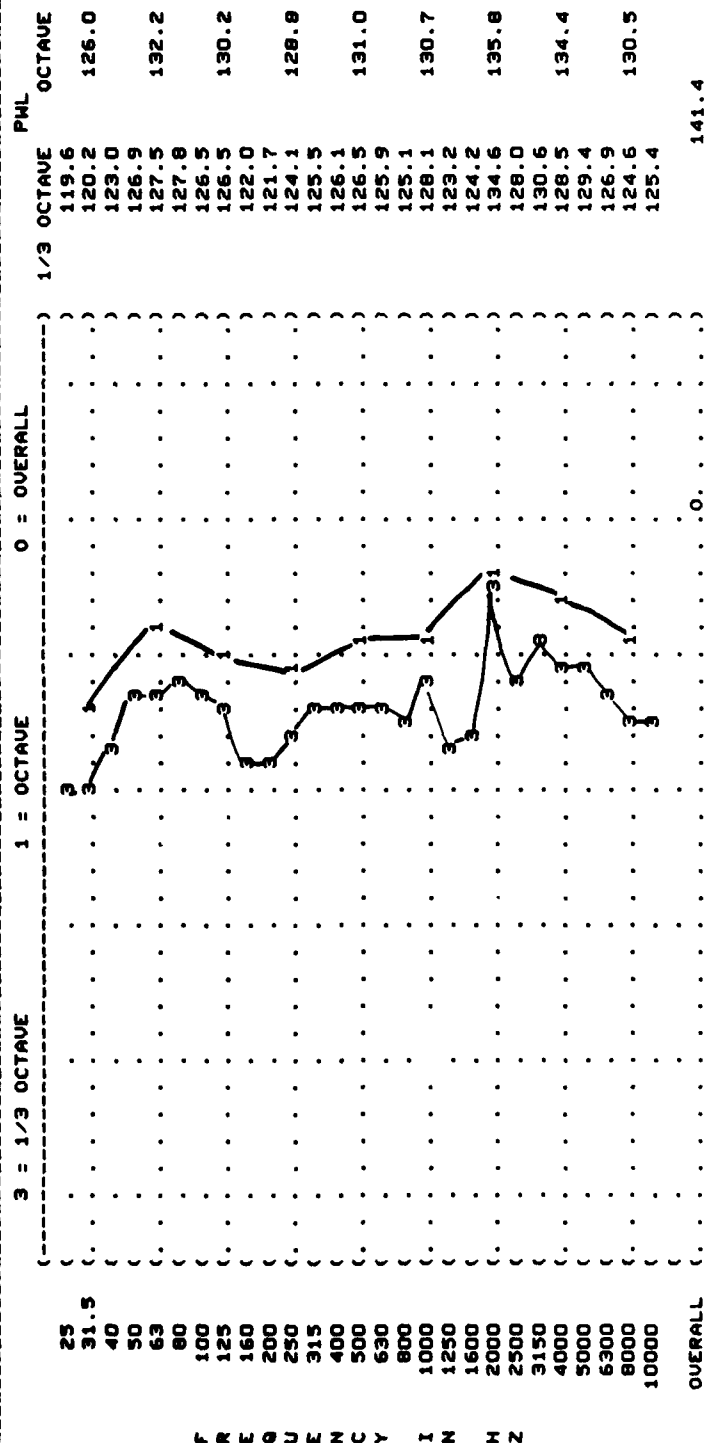




TABLE: DIRECTIVITY INDEX (DB)																			IDENTIFICATION:																		
6																			OMEGA 1.4																		
NOISE SOURCE/SUBJECT:																			TEST BS-005-001																		
(																			RUN 01																		
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TABLE: DIRECTIVITY INDEX (DB)																				IDENTIFICATION:	
6																				OMEGA 1.4	
NOISE SOURCE/SUBJECT:																				TEST 88-005-001	
( OPERATION:																				RUN 02	
( KC-10A AIRCRAFT																				26 JUL 82	
( CPG-SOC2																				PAGE 4	
( FAR FIELD NOISE																					
FREQ																					
( HZ)																					
1/3 OCTAVE																					
25																					
31.5																					
40																					
50																					
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315																					
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1250																					
1600																					
2000																					
2500																					
3150																					
4000																					
5000																					
6300																					
8000																					
10000																					
OCTAVE																					
31.5																					
63																					
125																					
250																					
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1000																					
2000																					
4000																					
8000																					
OVERALL																					

TABLE: DIRECTIVITY INDEX (DB)																
IDENTIFICATION:																
6																
NOISE SOURCE/SUBJECT: ( OPERATION: ) METEOROLOGY: )																
KC-10A AIRCRAFT ( 70X RPH ) TEMP = 18 C																
CF6-SOC2 ( ENGINE NO. 1 ) BAR PRESS = .735 M HG																
FAR FIELD NOISE ( FREE FLOW ) REL HUMID = 70 X																
FREQ (HZ) 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180																
ANGLE (DEGREES)																
1/3 OCTAVE																
25	-7	-7	-6	-6	-6	-3	-1	-2	0	-1	1	2	2	4	5	5
31.5	-8	-8	-6	-6	-4	-3	-3	-4	-3	-2	0	0	1	5	7	7
40	-9	-8	-8	-6	-7	-5	-4	-4	-2	1	2	2	2	4	5	5
50	-8	-7	-8	-5	-4	-5	-4	-4	-3	-2	0	2	3	5	6	6
63	-7	-7	-8	-6	-6	-6	-4	-4	-2	-1	1	0	3	5	5	5
80	-6	-7	-6	-5	-4	-4	-4	-2	-3	-1	1	2	3	5	5	5
100	-4	-5	-3	-4	-4	-4	-4	-3	-2	-1	1	2	3	4	5	5
125	-3	-4	-3	-4	-3	-3	-2	-3	-2	0	0	2	3	4	4	4
160	-4	-3	-2	-3	-2	-2	-2	-3	-2	0	0	2	3	4	2	3
200	-2	-1	-1	-1	-1	-2	-3	-2	-2	-1	0	2	4	3	1	3
250	1	-1	0	-1	-1	-2	-3	-2	-1	0	1	4	5	2	0	2
315	-4	-3	-1	-1	-1	-2	-2	-2	-1	0	1	2	5	2	1	2
400	-3	-4	-3	-1	0	1	-1	-2	-2	-1	1	3	4	1	-2	2
500	-2	-2	-1	0	1	-1	-1	-3	-2	-2	1	3	5	1	-2	1
630	-2	-1	0	0	1	0	0	-3	-2	-2	0	2	5	1	-1	1
800	-2	-1	0	1	2	0	1	-4	-2	-2	0	1	4	1	-1	1
1000	0	1	2	3	4	0	1	-3	-3	-3	-2	0	3	1	-2	1
1250	3	4	4	4	5	2	3	-1	-4	-4	-4	-6	-4	-6	-9	1
1600	4	4	5	4	6	4	3	-1	-4	-3	-3	-1	-1	-3	-5	1
2000	3	4	5	4	5	3	2	-1	-4	-3	-3	-1	-1	-3	-5	1
2500	3	5	5	4	5	3	2	-2	-5	-5	-4	-6	-3	-5	-8	1
3150	6	8	7	3	6	4	2	-2	-5	-8	-7	-6	-2	-5	-9	1
4000	0	1	1	2	3	4	5	-1	-2	-3	-3	-1	-1	-5	-9	1
5000	-1	0	0	0	3	4	5	0	0	-4	-4	-2	1	-3	-7	1
6300	1	2	2	2	4	3	5	0	-1	-3	-4	-3	-2	-4	-7	1
8000	1	2	3	2	4	4	5	0	-3	-4	-5	-4	-4	-5	-9	1
10000	1	2	2	2	4	4	6	-1	-3	-5	-6	-3	-3	-5	-9	1
OCTAVE																
31.5	-8	-8	-7	-6	-5	-3	-3	-3	-2	0	1	1	1	5	6	6
63	-7	-7	-6	-6	-5	-4	-3	-3	-3	-1	1	1	3	5	6	6
125	-4	-4	-3	-4	-3	-3	-3	-2	-1	1	1	2	3	4	4	4
250	-1	-2	-1	-1	-2	-2	-2	-2	-1	0	3	4	3	1	1	1
500	-2	-2	-2	-1	0	-1	0	-3	-2	-1	1	3	4	1	-1	1
1000	1	2	3	3	4	1	2	-3	-3	-3	-2	0	2	0	-3	1
2000	4	4	5	4	6	4	3	-1	-4	-6	-6	-4	-3	-5	-8	1
4000	3	5	5	2	5	4	4	-1	-2	-5	-4	-3	-1	-4	-8	1
8000	1	2	2	2	4	4	5	0	-2	-4	-5	-3	-3	-4	-8	1
OVERALL	1	2	2	0	2	1	1	-2	-2	-2	-1	0	2	2	2	2

TABLE: DIRECTIVITY INDEX (DB)																
IDENTIFICATION:																
6																
NOISE SOURCE/SUBJECT: ( OPERATION: ) METEOROLOGY: )																
KC-10A AIRCRAFT ( 95X RPM ) TEMP = 18 C																
CF6-SOC2 ( ENGINE NO. 1 ) BAR PRESS = .735 M HG																
FAR FIELD NOISE ( FREE FLOW ) REL HUMID = 70 %																
FREQ ( HZ) 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180																
1/3 OCTAVE																
25	-12	-9	-9	-9	-7	-4	-5	-4	-4	-3	-5	-2	0	4	9	9
31.5	-10	-10	-9	-10	-6	-6	-7	-6	-4	-4	-3	-2	3	5	9	9
40	-12	-10	-11	-10	-8	-9	-8	-9	-7	-6	-3	-1	2	6	9	9
50	-11	-9	-12	-9	-10	-9	-9	-7	-6	-4	-3	0	2	6	9	9
63	-11	-10	-12	-9	-9	-10	-9	-7	-6	-4	-1	0	3	7	7	7
80	-10	-9	-10	-10	-9	-8	-8	-7	-6	-4	-1	1	3	7	7	7
100	-10	-10	-10	-8	-8	-8	-7	-6	-5	-4	-1	2	3	7	6	5
125	-10	-9	-7	-7	-7	-6	-6	-5	-4	-3	-1	2	4	6	5	5
160	-10	-9	-8	-7	-6	-6	-5	-4	-3	-2	1	3	4	6	4	4
200	-10	-8	-6	-6	-5	-5	-5	-4	-3	-2	0	2	5	5	3	3
250	-10	-9	-7	-6	-5	-5	-4	-3	-2	-1	0	2	5	5	2	2
315	-10	-8	-6	-6	-5	-4	-3	-2	-1	1	1	2	4	5	0	0
400	-7	-6	-2	-3	-1	-1	-2	0	-1	0	1	2	3	3	-2	-2
500	-7	-6	-2	-2	-3	-3	-2	-2	-2	0	0	3	4	3	-2	-2
630	-7	-5	-2	-1	0	0	0	-2	-1	0	0	2	3	3	-2	-2
800	-5	-4	-2	-1	-1	1	1	-2	-3	-2	1	2	3	2	-3	-3
1000	-3	-1	1	1	2	2	1	-1	-1	-3	0	2	3	2	-3	-3
1250	0	1	1	3	2	1	0	-1	-3	-2	0	1	2	2	-3	-3
1600	1	1	3	4	3	2	0	0	-3	-3	-1	0	1	0	-6	-6
2000	3	4	6	6	4	4	0	-1	-4	-5	-5	-2	0	-3	-10	-10
2500	0	2	3	4	3	3	1	0	-3	-3	-1	0	1	-1	-8	-8
3150	0	1	3	4	3	3	0	0	-2	-2	-1	0	2	-2	-8	-8
4000	1	3	4	4	3	2	-2	-1	-3	-4	-2	1	4	-3	-9	-9
5000	-1	1	2	3	2	2	-1	-1	-2	-1	1	2	2	-2	-8	-8
6300	-3	-2	-1	0	0	-1	-3	-3	-4	-2	2	4	5	0	-7	-7
8000	-2	-1	0	1	1	0	-2	-1	-3	-1	2	3	3	0	-6	-6
10000	-1	0	1	2	2	1	-1	-1	-4	-2	1	3	3	-1	-5	-5
OCTAVE																
31.5	-12	-10	-10	-10	-7	-7	-7	-7	-5	-5	-3	-1	2	5	9	9
63	-11	-9	-11	-9	-9	-9	-9	-7	-6	-4	-1	0	3	7	7	7
125	-10	-10	-8	-7	-7	-7	-6	-5	-4	-3	0	2	4	6	5	5
250	-10	-9	-7	-6	-5	-5	-4	-3	-2	-1	1	2	5	5	2	2
500	-7	-6	-2	-2	-1	-1	-2	-1	-1	0	0	3	4	3	-2	-2
1000	-2	-1	0	1	1	1	0	-1	-3	-2	0	2	3	3	-3	-3
2000	2	3	5	5	4	3	0	-1	-4	-3	-1	1	1	-2	-8	-8
4000	0	2	3	3	3	2	-1	-1	-3	-2	1	1	3	-2	-8	-8
8000	-2	-1	0	0	0	0	-2	-2	-4	-2	2	4	4	0	-7	-7
OVERALL																
	-6	-5	-4	-3	-3	-3	-4	-4	-4	-3	-1	1	3	5	5	5



TABLE: DIRECTIVITY INDEX (DB)																
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NOISE SOURCE/SUBJECT:																
KC-10A AIRCRAFT																
CF6-50C2																
FAR FIELD NOISE																
FREQ (HZ)																
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180																
1/3 OCTAVE																
25	-13	-11	-12	-10	-10	-8	-7	-7	-4	-5	-4	-2	-2	5	10	
31.5	-13	-12	-12	-12	-10	-10	-9	-8	-7	-7	-6	-4	-1	6	10	
40	-14	-12	-14	-12	-11	-12	-11	-11	-10	-8	-6	-3	2	7	9	
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63	-14	-13	-14	-13	-13	-14	-13	-11	-8	-7	-5	-2	1	9	6	
80	-14	-14	-13	-12	-11	-11	-10	-10	-8	-7	-5	-1	1	8	7	
100	-14	-14	-12	-11	-10	-10	-10	-8	-7	-5	-3	-1	2	8	6	
125	-15	-15	-11	-11	-10	-10	-8	-6	-6	-6	-4	0	1	8	6	
160	-15	-15	-12	-11	-10	-9	-8	-7	-6	-4	-2	1	3	8	6	
200	-14	-14	-12	-9	-9	-8	-8	-6	-6	-4	-2	2	3	7	6	
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500	-10	-10	-9	-7	-6	-5	-5	-4	-5	-1	1	4	4	5	2	
630	-10	-10	-9	-7	-6	-5	-5	-4	-5	0	1	4	4	5	0	
800	-8	-8	-7	-6	-5	-4	-4	-3	-5	0	2	4	4	4	-1	
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1600	-7	-7	-6	-5	-4	-3	-3	-1	-1	1	2	4	3	3	-4	
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2500	-3	-5	-5	-4	-3	-2	-3	-1	-1	1	1	5	2	2	-5	
3150	-6	-6	-3	-4	-3	-2	-2	0	-1	1	2	4	2	2	-6	
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8000	-8	-8	-6	-6	-5	-4	-4	-2	-1	0	3	5	4	2	-7	
10000	-8	-8	-6	-5	-4	-3	-3	0	1	0	2	5	3	1	-5	
OCTAVE																
31.5	-13	-12	-13	-12	-11	-10	-9	-9	-7	-7	-5	-3	0	6	10	
63	-13	-13	-14	-13	-12	-12	-12	-10	-8	-7	-5	-1	1	8	8	
125	-15	-15	-12	-11	-10	-9	-8	-7	-6	-5	-3	0	2	8	6	
250	-13	-13	-11	-9	-9	-8	-7	-6	-5	-3	-1	2	3	7	6	
500	-10	-10	-9	-7	-7	-6	-6	-4	-5	-1	0	4	4	5	3	
1000	-8	-8	-7	-6	-5	-4	-4	-2	-3	0	2	4	4	4	-1	
2000	-5	-6	-4	-3	-3	-3	-3	-1	-1	1	2	5	3	3	-5	
4000	-6	-7	-4	-4	-3	-2	-2	0	0	1	2	4	2	1	-6	
8000	-8	-8	-6	-6	-5	-4	-4	-2	-1	0	3	5	3	0	-7	
OVERALL																
	-13	-13	-11	-10	-9	-9	-8	-7	-6	-4	-3	1	2	7	7	



TABLE: DIRECTIVITY INDEX (DB)																								
IDENTIFICATION:																								
6																								
NOISE SOURCE/SUBJECT:										OPERATION:					METEOROLOGY:					TEST BS-005-001				
KC-10A AIRCRAFT										45X RPM ALL ENGINES					TEMP = 18 C					OMEGA 1.4				
CF6-50C2										FREE FLOW					BAR PRESS = .735 M HG					RUN 07				
FAR FIELD NOISE															REL HUMID = 70 %					26 JUL 82				
PAGE 4																								
FREQ	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180					
(HZ)																								
1/3 OCTAVE																								
25	-1	-1	-1	0	-3	-2	-1	-1	-2	-1	-1	3	2	4	2									
31.5	0	-1	0	0	-3	-3	-3	-2	-2	0	4	5	4	4	4									
40	-4	0	-3	1	-3	-2	-2	-3	-2	0	1	1	2	3	5									
50	-3	-4	-4	-1	-2	-2	-2	-3	-2	-1	1	1	2	2	6									
63	-2	-4	-4	-3	-4	-4	-2	-1	-1	0	1	2	4	2	4									
80	0	-2	-3	-5	-4	-3	-3	-2	-2	0	1	2	3	3	5									
100	-1	-2	-1	-3	-3	-2	-4	-2	0	-1	1	1	3	4	4									
125	-1	0	-1	0	-1	-1	0	1	0	0	1	1	0	2	3									
160	-1	-1	0	-1	0	-1	0	0	-1	0	1	1	1	2	3									
200	1	1	2	1	0	0	-1	-1	-1	0	1	0	1	1	3									
250	0	1	0	0	-1	-1	-2	-1	-1	0	0	0	3	2	2									
315	0	0	1	-2	-1	-1	-2	-1	-2	0	1	1	3	3	2									
400	0	1	0	-3	-1	0	-2	-2	-1	0	1	1	4	2	1									
500	1	0	0	-2	0	0	-2	-2	-3	-1	1	2	3	3	1									
630	1	1	2	-1	1	1	-1	-2	-4	-3	-2	1	3	4	2									
800	5	2	3	-1	2	2	-1	-1	-4	-4	-3	-1	2	3	3									
1000	13	6	6	2	2	3	1	2	-5	-5	-5	-4	-2	0	0									
1250	10	7	6	3	4	3	1	0	-4	-5	-5	-5	-3	-1	-3									
1600	9	8	7	4	3	3	1	0	-6	-6	-6	-6	-4	-2	-3									
2000	8	10	6	5	2	6	2	-1	-7	-9	-9	-11	-11	-9	-10									
2500	5	6	6	5	4	3	1	-1	-6	-5	-5	-4	-2	-1	-3									
3150	3	3	3	2	1	2	1	-1	-5	-4	-4	-1	2	3	2									
4000	6	7	6	3	3	3	3	2	-4	-5	-6	-6	-4	-1	-2									
5000	7	7	5	3	3	3	3	2	-3	-4	-6	-6	-5	-2	-2									
6300	5	5	5	2	3	3	3	2	-3	-5	-6	-6	-4	-1	-1									
8000	4	5	5	2	3	3	2	1	-4	-4	-3	-2	-2	1	0									
10000	4	5	5	4	1	2	1	-2	-5	-3	-2	0	1	3	1									
OCTAVE																								
31.5	0	-2	0	-4	-4	-4	-4	-3	-3	-1	0	3	3	3	4									
63	-2	-3	-4	-3	-3	-3	-2	-2	-2	0	1	1	3	3	5									
125	-1	-1	-1	-1	-2	-1	-1	-1	0	-1	1	1	2	3	3									
250	0	0	1	-1	-1	-1	-2	-1	-1	0	1	1	3	2	2									
500	1	1	1	-2	0	0	-2	-2	-3	-1	0	1	3	3	2									
1000	11	5	5	2	2	3	1	1	-4	-5	-3	0	1	1	1									
2000	8	9	6	5	3	5	1	-1	-6	-8	-8	-7	-6	-7	-7									
4000	5	5	5	3	2	3	2	1	-4	-4	-5	-3	0	1	0									
8000	5	5	5	2	3	3	3	1	-4	-4	-4	-3	-2	0	-1									
OVERALL	6	5	4	2	1	2	0	-1	-3	-3	-2	-1	1	1	1									

TABLE: DIRECTIVITY INDEX (DB)																
IDENTIFICATION:																
6																
NOISE SOURCE/SUBJECT:																
OPERATION:																
METEOROLOGY:																
TEMP = 18 C																
BAR PRESS = .735 M HG																
REL HUMID = 70 %																
PAGE 4																
FREQ (HZ)																
ANGLE (DEGREES)																
1/3 OCTAVE																
25	-8	-8	-7	-6	-5	-3	-3	-2	-2	-1	0	1	5	7		
31.5	-8	-8	-7	-7	-5	-7	-5	-5	-4	-2	0	4	4	9		
40	-9	-9	-8	-7	-7	-7	-6	-4	-3	0	0	1	1	5	8	
50	-8	-9	-10	-8	-9	-7	-7	-5	-4	-2	0	1	1	5	9	
63	-8	-8	-10	-9	-8	-8	-5	-4	-3	-1	0	3	6	8		
80	-8	-9	-9	-9	-9	-8	-6	-5	-4	-1	1	2	6	8		
100	-8	-9	-7	-7	-8	-6	-5	-4	-3	0	1	3	6	6		
125	-8	-7	-6	-6	-6	-5	-4	-3	-3	0	1	4	6	5		
160	-9	-7	-6	-5	-5	-5	-4	-3	-3	-1	2	3	6	5		
200	-9	-7	-6	-5	-5	-5	-4	-3	-2	0	2	4	5	4		
250	-9	-7	-5	-5	-5	-4	-3	-3	-2	0	2	4	5	3		
315	-8	-6	-5	-4	-5	-3	-2	-1	0	0	2	3	5	3		
400	-4	-4	-4	-2	-4	1	-2	-2	1	1	1	3	4	1		
500	-2	0	-3	-1	-3	-1	0	-1	0	0	3	3	4	0		
630	-5	-3	-2	0	-1	0	0	-1	-1	0	2	3	3	0		
800	-2	-2	0	-1	-1	1	1	-1	-1	0	2	3	2	-1		
1000	0	1	0	0	2	1	0	-1	-2	-1	1	3	2	-1		
1250	1	2	3	2	1	0	0	-1	-2	-1	1	2	2	0		
1600	3	3	4	2	0	1	0	-2	-2	-2	0	1	1	-2		
2000	4	4	5	4	2	2	0	-3	-4	-5	-2	0	1	-3		
2500	1	2	3	2	1	2	0	-1	-2	-2	0	0	1	-3		
3150	1	3	3	2	1	2	0	-1	-2	-2	0	1	1	-2		
4000	4	4	5	3	2	1	-1	-2	-3	-3	1	1	3	-1		
5000	1	2	3	1	1	0	-1	-2	-1	0	1	2	2	-2		
6300	-2	-1	0	-1	-2	-2	-3	-4	-2	0	2	4	5	0		
8000	-1	-1	0	-1	-1	-2	-2	-3	-2	-1	2	3	5	0		
10000	0	1	1	0	0	-1	-1	-4	-3	-1	1	3	4	1		
OCTAVE																
31.5	-8	-8	-9	-7	-6	-6	-5	-4	-3	-1	0	2	5	8		
63	-8	-9	-10	-8	-9	-8	-6	-5	-4	-1	0	2	5	8		
125	-8	-8	-7	-6	-6	-5	-5	-4	-3	0	1	3	6	6		
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500	-4	-2	-2	-3	-1	-3	0	-1	0	0	2	3	3	1		
1000	-1	0	1	0	1	1	0	-1	-1	0	1	3	2	-1		
2000	3	4	5	4	3	2	0	-2	-3	-4	-1	0	-3	-3		
4000	3	3	4	2	2	1	0	-2	-2	-2	1	1	2	-2		
8000	-1	-1	0	-1	-1	-2	-2	-3	-4	0	2	4	5	0		
OVERALL																
	-4	-3	-3	-3	-4	-3	-3	-3	-2	-1	1	3	5	6		

5

IDENTIFICATION:

## OMEGA 1.4

**TEST BS-005-001**

**01 RUN**

TEMP = 15 C

**BAR PRESS = .760 M**

REL HUMID = 70 %

**OPERATION:**

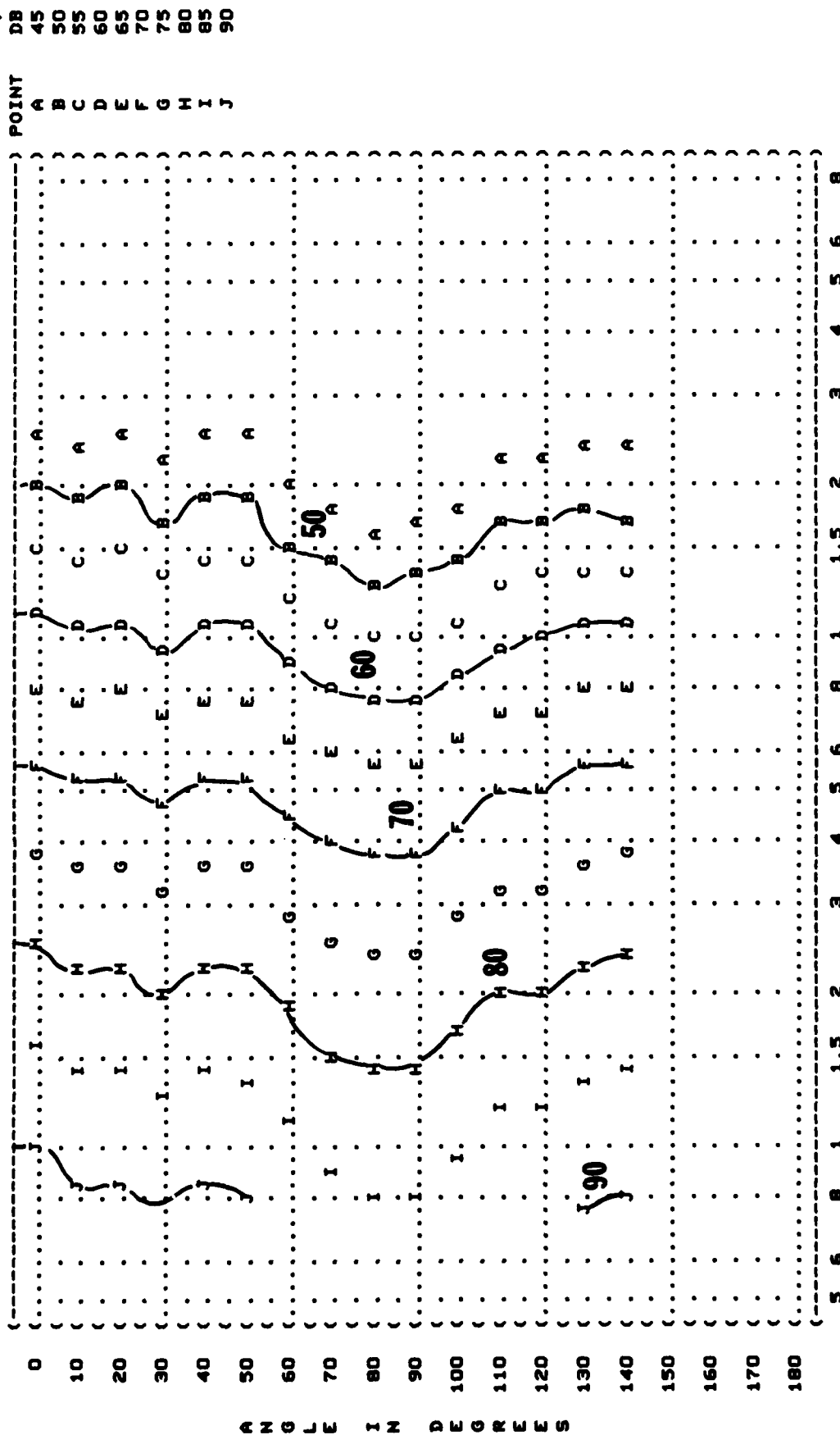
**IDLE POWER 23**

**ENGINE NO.**

# KC-10A AIRCRAFT

**CF6-50C2**

## FAR FIELD NOISE



DISTANCE FROM SOURCE (METERS)

IDENTIFICATION:

## OMEGA 1.4

**METEOROLOGY:**

RUN 02

TEMP = 15 C

TEMP = 15 C

BAR PRESS = .760 M HG

BAR PRESS = .760 M HG

REL HUMID = 70 %

REL HUMID = 70 %

POINT	A	B	C	D	E	F	G	H	I	J	K	L
DB	45	50	55	60	65	70	75	80	85	90	95	100

620 LE HZ 0000000000

47

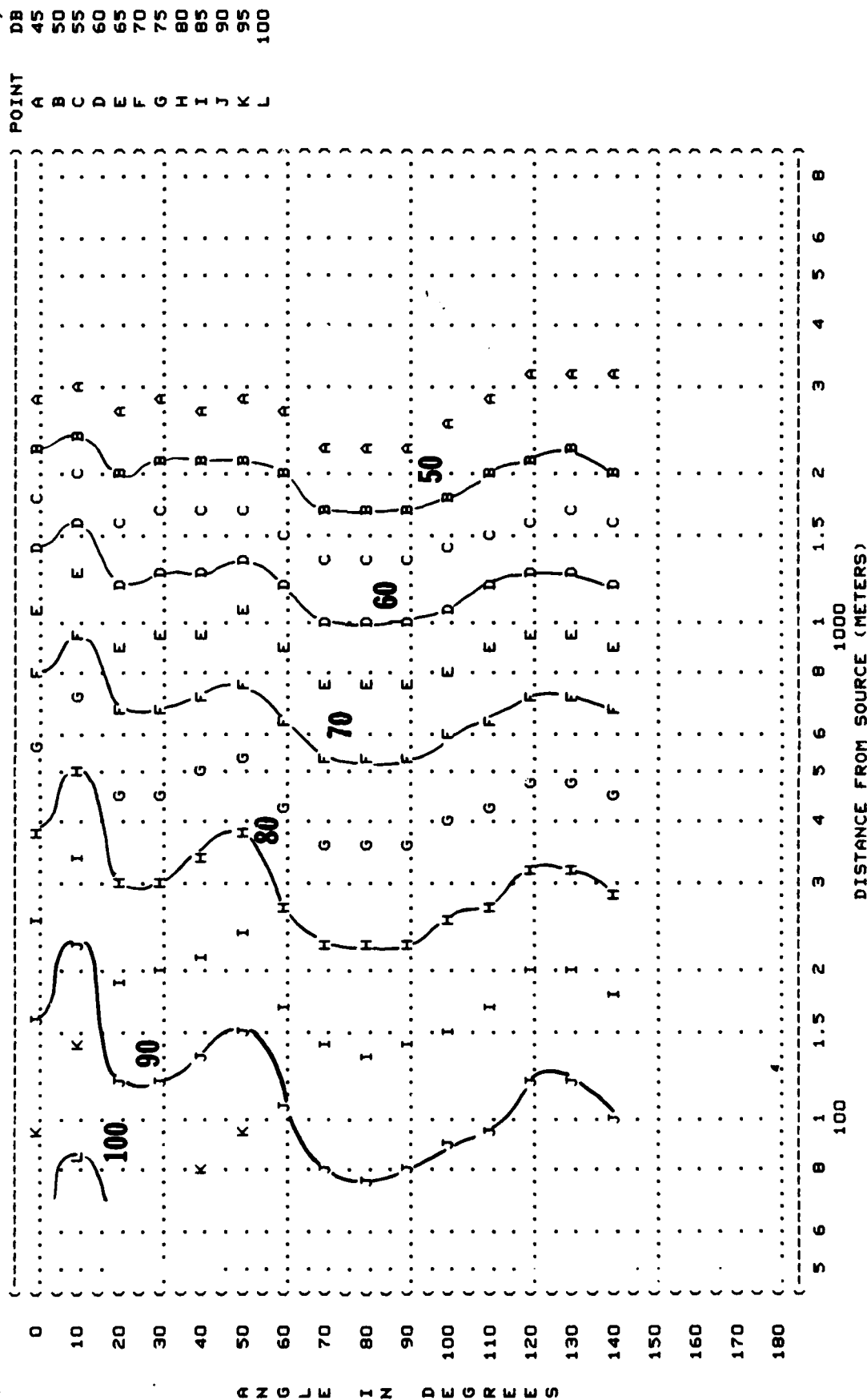
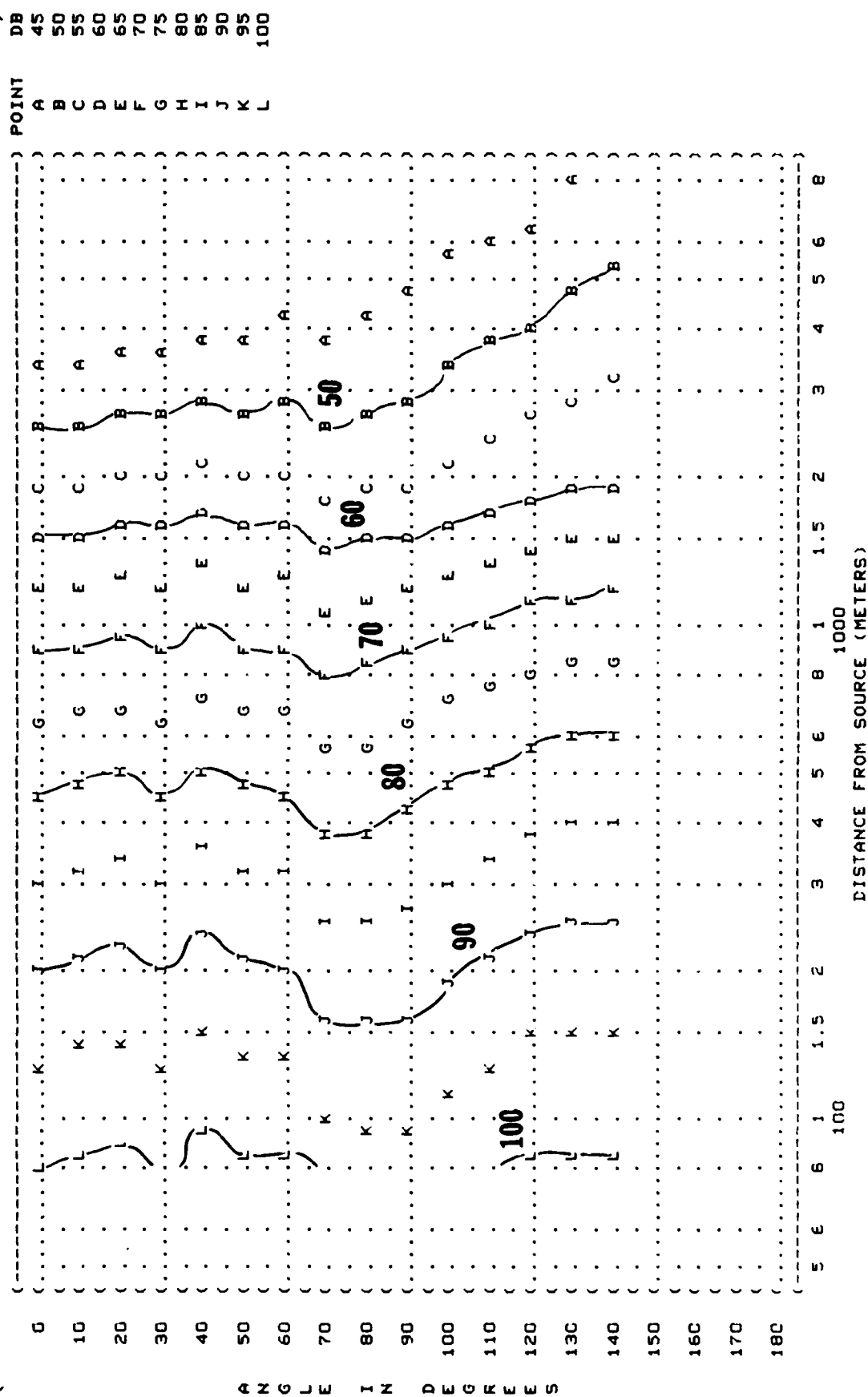


FIGURE: OVERALL SOUND PRESSURE LEVEL [OASPL]  
EQUAL LEVEL CONTOURS (DB)

5

IDENTIFICATION:  
OMEGA 1.4  
TEST BS-005-001  
RUN 03  
METEOROLOGY:  
TEMP = 15 C  
BAR PRESS = .760 M HG  
REL HUMID = 70 %  
OPERATION:  
70% RPM  
ENGINE NO. 1  
FREE FLOW  
NOISE SOURCE/SUBJECT:  
KC-10A AIRCRAFT  
CF6-SOC2  
FAR FIELD NOISE



DISTANCE FROM SOURCE (METERS)

FIGURE: OVERALL SOUND PRESSURE LEVEL [OASPL]  
5 EQUAL LEVEL CONTOURS (DB)

NOISE SOURCE/SUBJECT:

OPERATION:

METEOROLOGY:

KC-10A AIRCRAFT  
CF6-SOC2  
FAR FIELD NOISE

TAKEOFF RATED THRUST  
ENGINE NO. 1  
FREE FLOW

TEMP = 15 C  
BAR PRESS = 760 M HG  
REL HUMID = 70 %

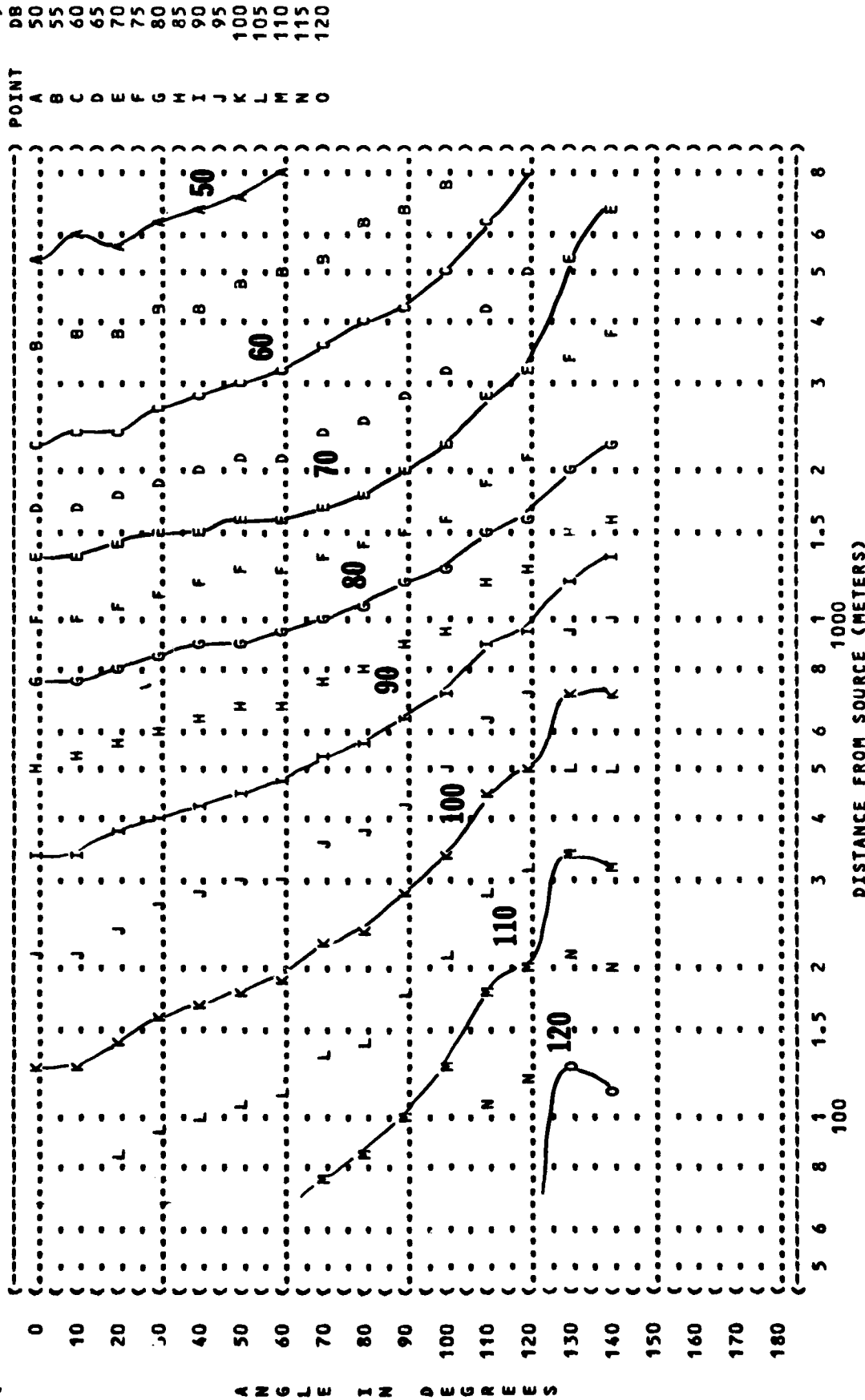
OMEGA 1.4

TEST BS-005-001

RUN 06

26 JUL 82

PAGE 13



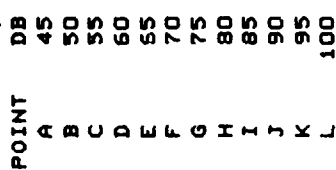
**FIGURE: OVERALL SOUND PRESSURE LEVEL (OASPL)  
EQUAL LEVEL CONTOURS (DB)**

## OMEGA 1.4

```
TEMP      = 15 C
BAR PRESS = .760 M
REL HUMID = 70 %
```

**45X RPM ALL ENGINES  
FREE FLOW**

KC-10A AIRCRAFT  
CF6-50C2  
FAR FIELD NOISE



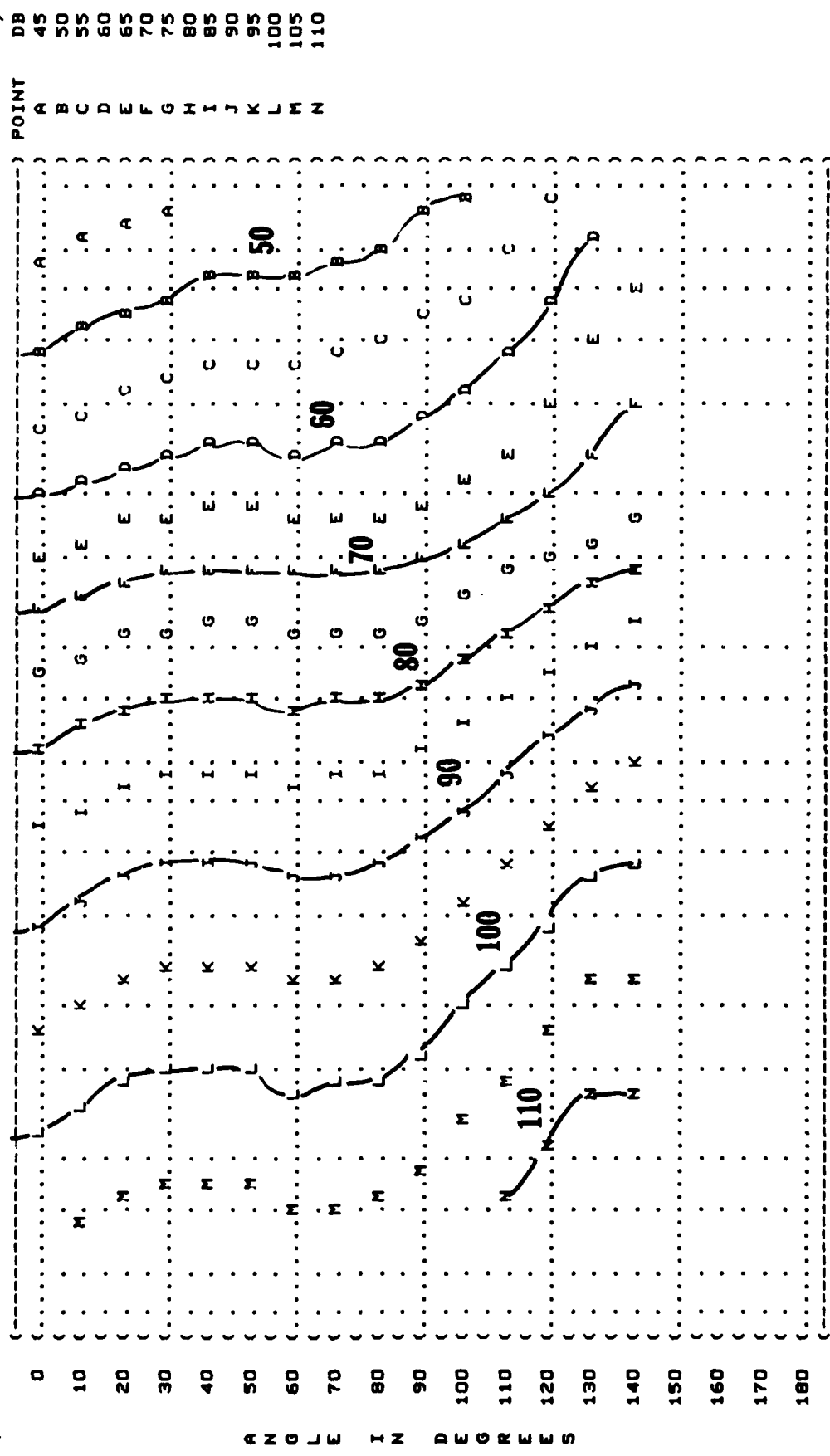
52

**DISTANCE FROM SOURCE (METERS)**  
**1000**

FIGURE: OVERALL SOUND PRESSURE LEVEL (OASPL)  
 5  
 EQUAL LEVEL CONTOURS (DB)

NOISE SOURCE/SUBJECT: ( OPERATION: ) METEOROLOGY: )  
 KC-10A AIRCRAFT ( 95X RPM ) TEMP = 15 C )  
 CF6-50C2 ( ENGINE NO. 1 ) BAR PRESS = .760 M HG )  
 FAR FIELD NOISE ( FREE FLOW ) REL HUMID = 70 % )

OMEGA 1.4  
 TEST BS-005-001  
 RUN 04  
 26 JUL 82  
 PAGE 13



DISTANCE FROM SOURCE (METERS)



FIGURE: OVERALL SOUND PRESSURE LEVEL (OASPL)  
5  
EQUAL LEVEL CONTOURS (DB)

NOISE SOURCE/SUBJECT:

OPERATION:

METEOROLOGY:

KC-10A AIRCRAFT  
CF6-50C2  
FAR FIELD NOISE

MAXIMUM CONTINUOUS POWER  
ENGINE NO. 1  
FREE FLOW

TEMP = 15 C  
BAR PRESS = .760 M HG  
REL HUMID = 70 %

IDENTIFICATION:

OMEGA 1.4

TEST BS-005-001

RUN 05

26 JUL 82

PAGE 13

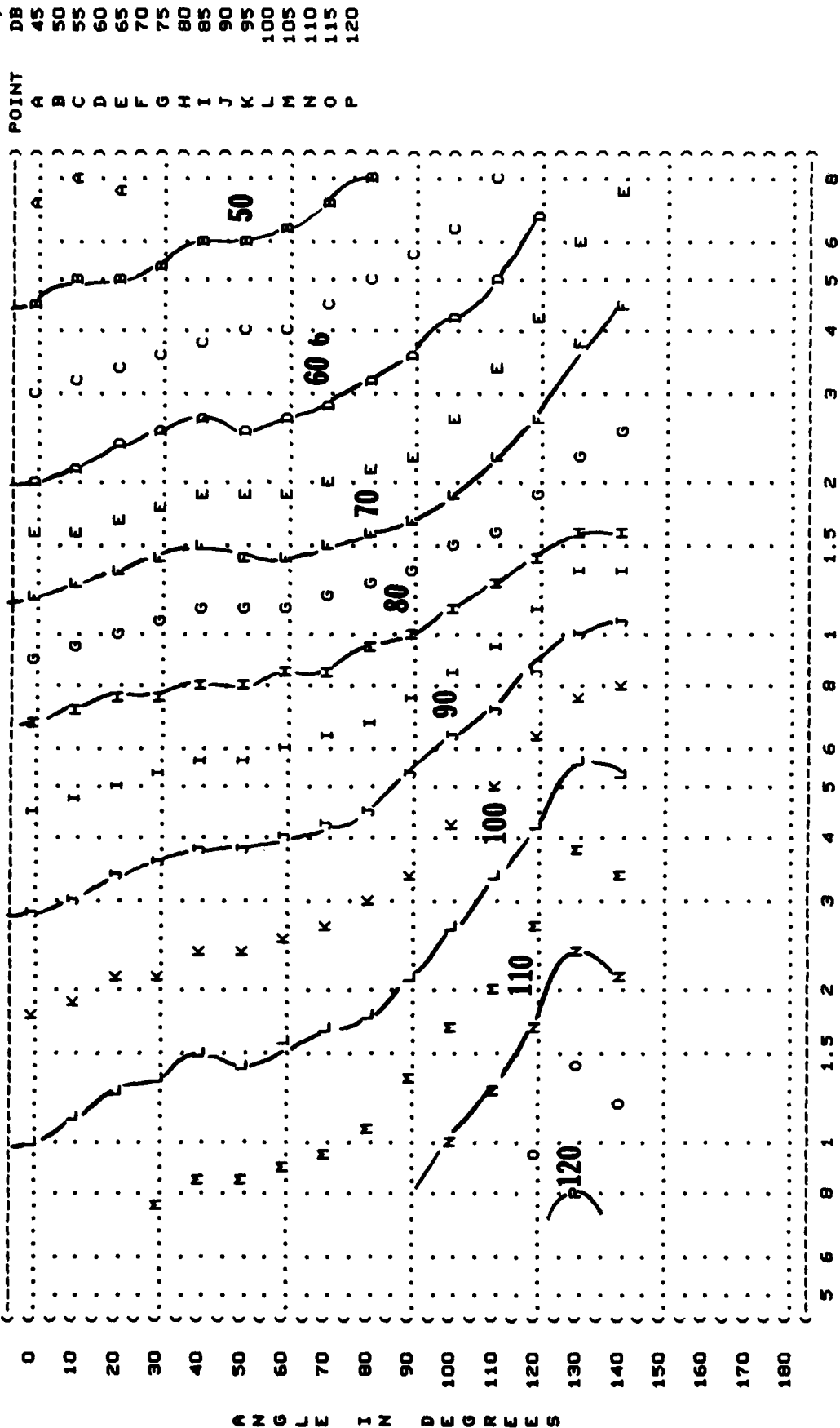


FIGURE: OVERALL SOUND PRESSURE LEVEL (OASPL)  
EQUAL LEVEL CONTOURS (DB)

5

IDENTIFICATION:  
OMEGA 1.4  
TEST BS-005-001  
RUN 08

NOISE SOURCE/SUBJECT:

OPERATION:

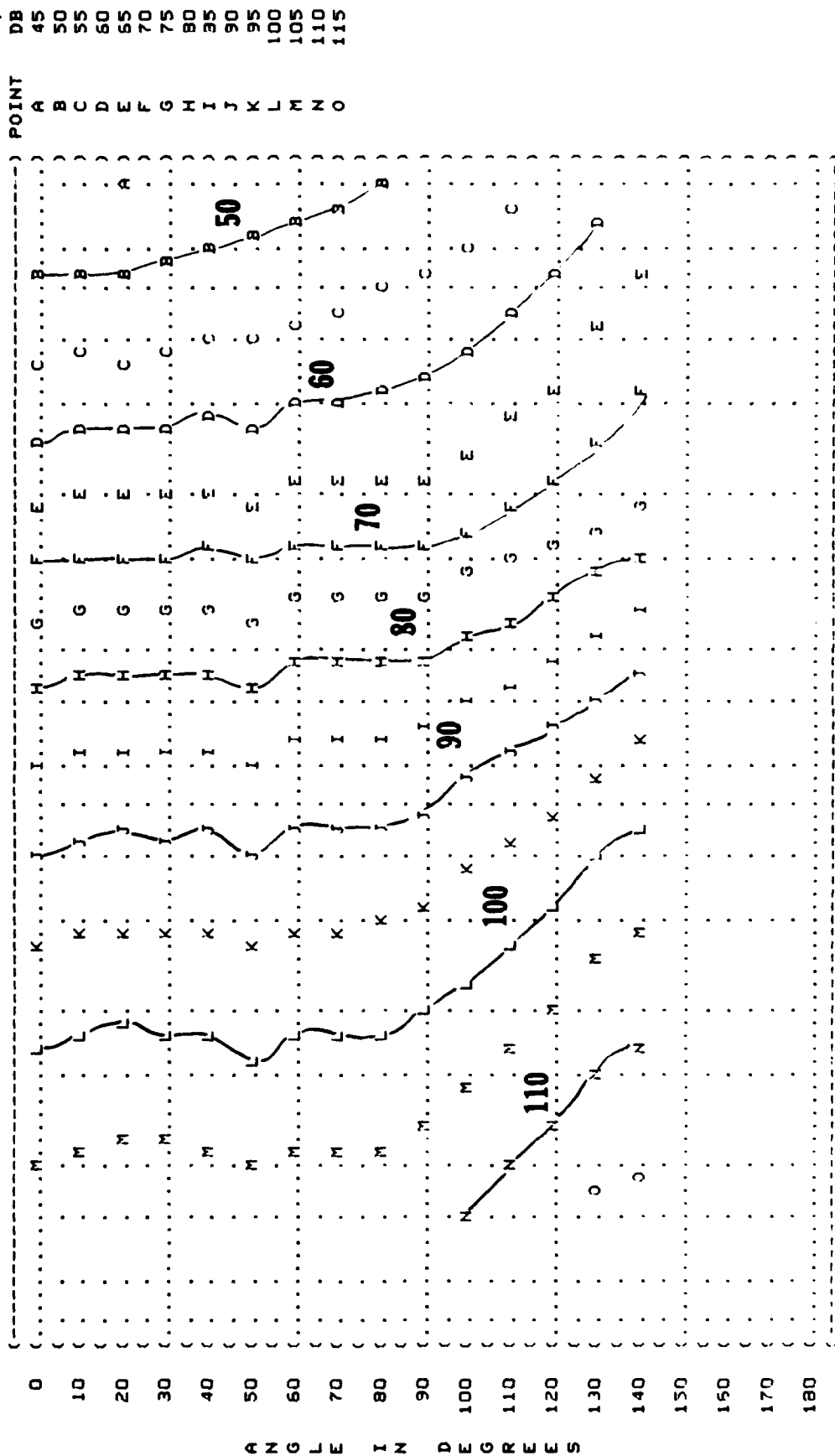
METEOROLOGY:

KC-10A AIRCRAFT  
CF6-SOC2  
FAR FIELD NOISE

95% RPM ALL ENGINES  
FREE FLOW

TEMP = 15 C  
BAR PRESS = .760 M HG  
REL HUMID = 70 %

PAGE 13



DISTANCE FROM SOURCE (METERS)

FIGURE: C-WEIGHTED OVERALL SOUND LEVEL (OASLC)  
EQUAL LEVEL CONTOURS (DBC)

6

IDENTIFICATION:  
OMEGA 1.4  
TEST BS-005-001  
RUN 08  
26 JUL 82  
PAGE 14

METEOROLOGY:  
TEMP = 15 C  
BAR PRESS = .760 M HG  
REL HUMID = 70 %

OPERATION:  
KC-10A AIRCRAFT  
CF6-50C2  
FREE FLOW  
FAR FIELD NOISE

NOISE SOURCE/SUBJECT:

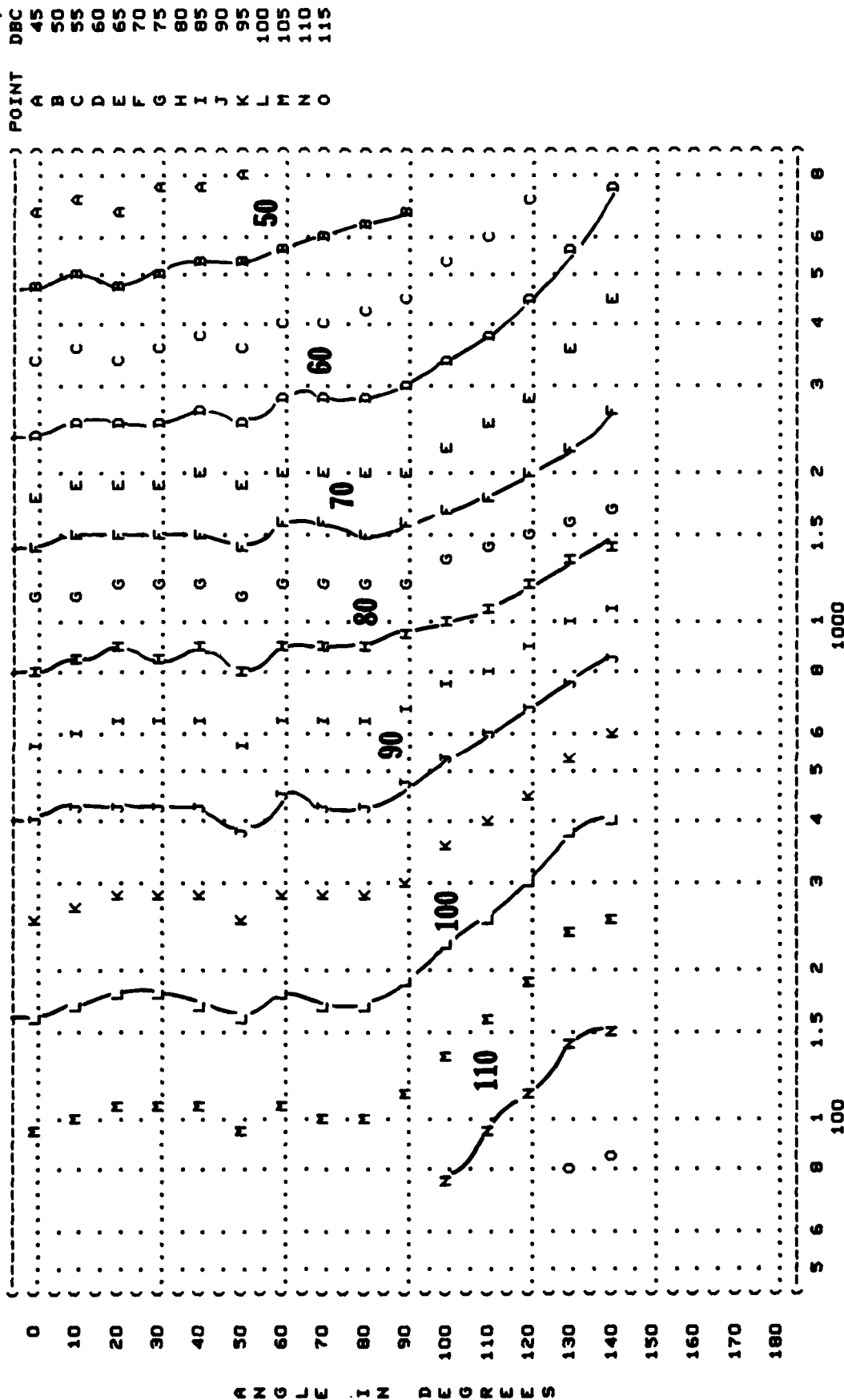
OPERATION:

95% RPM ALL ENGINES  
FREE FLOW

METEOROLOGY:

TEMP = 15 C  
BAR PRESS = .760 M HG  
REL HUMID = 70 %

POINT DBC  
A 45  
B 50  
C 55  
D 60  
E 65  
F 70  
G 75  
H 80  
I 85  
J 90  
K 95  
L 100  
M 105  
N 110  
O 115



**IDENTIFICATION:**

•  
•  
•  
•  
•  
•

### METEOROLOGY:

07 00 RUN

BAR PRESS = .760 M HG

REL HUMID = 70 %

**►**

Figure 1 is a line graph showing the relationship between the number of eggs per female (Y-axis) and the number of eggs per female (X-axis). The Y-axis ranges from 50 to 120, and the X-axis ranges from 50 to 100. The graph displays three distinct curves labeled A, B, and C, representing different experimental conditions. Curve A shows a peak around 60 eggs per female, while curves B and C show a more gradual increase. The curves are plotted on a grid with dotted lines.

Number of eggs per female (X)	Curve A (Y)	Curve B (Y)	Curve C (Y)
50	55	55	55
60	65	58	58
70	60	60	60
80	55	62	62
90	50	65	65
100	55	68	68
110	60	70	70
120	65	72	72

55

1000

DISTANCE FROM SOURCE (METERS)



FIGURE: C-WEIGHTED OVERALL SOUND LEVEL (OASLC)  
EQUAL LEVEL CONTOURS (DNC)

6

NOISE SOURCE/SUBJECT:

KC-10A AIRCRAFT  
CF6-50C2  
FAR FIELD NOISE

OPERATION:

TAKEOFF RATED THRUST  
ENGINE NO. 1  
FREE FLOW

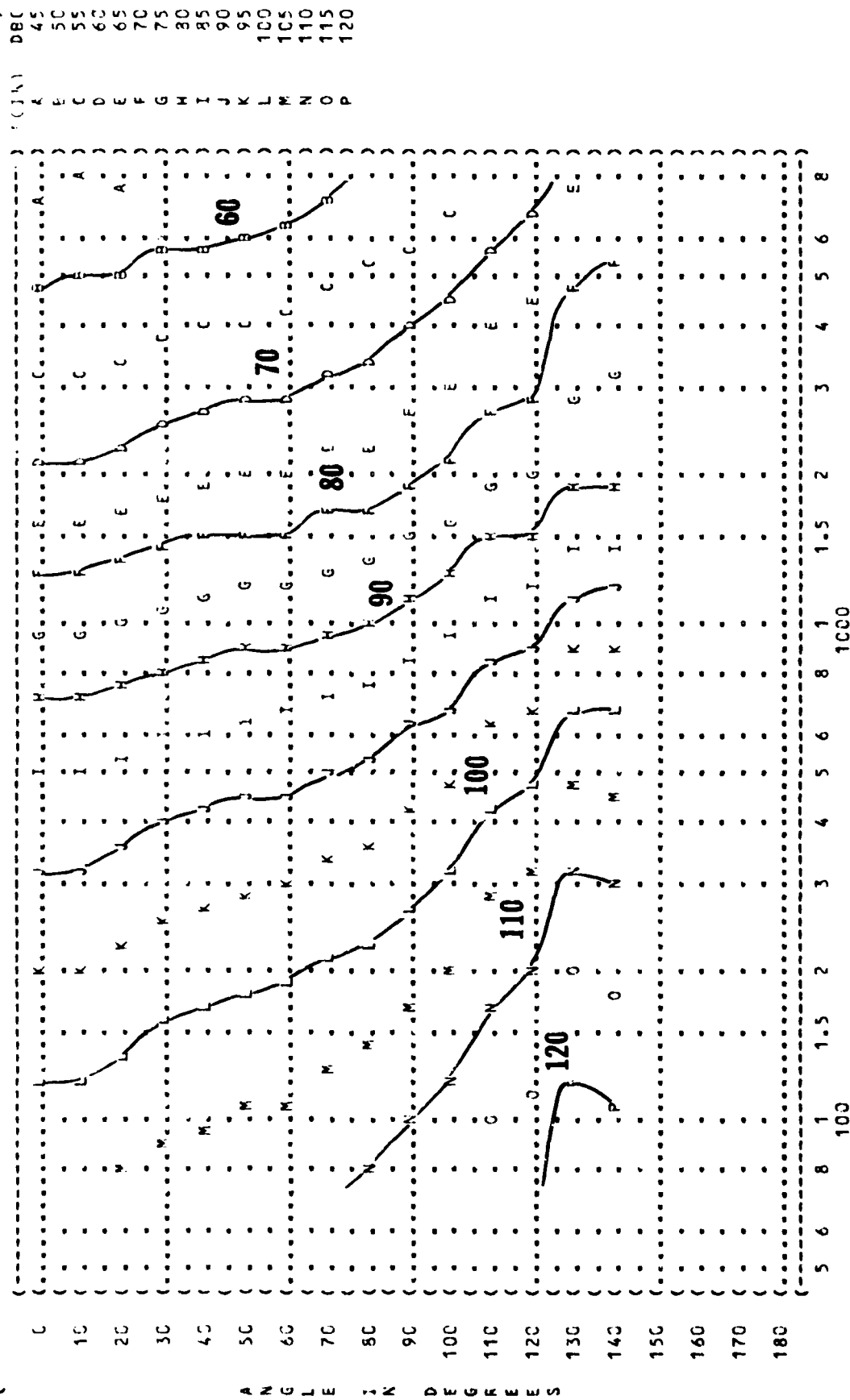
METEORCLOGY:

TEMP = 15 C  
BAR PRESS = .760 M HG  
REL HUMID = 70 %

IDENTIFICATION:

OMEGA 1-4  
TEST 95-005-001  
RUN OF

PAGE 1



DISTANCE FROM SOURCE (METERS)

FIGURE: C-WEIGHTED OVERALL SOUND LEVEL (OASLC)  
 6 EQUAL LEVEL CONTOURS (DBC)

IDENTIFICATION:  
 OMEGA 1.4  
 TEST BS-005-001  
 RUN 05  
 26 JUL 82  
 PAGE 14

METEOROLOGY:  
 TEMP = 15 C  
 BAR PRESS = .760 M HG  
 REL HUMID = 70 %

OPERATION:  
 MAXIMUM CONTINUOUS POWER  
 ENGINE NO. 1  
 FREE FLOW

NOISE SOURCE/SUBJECT:  
 KC-10A AIRCRAFT  
 CF6-SOC2  
 FAR FIELD NOISE

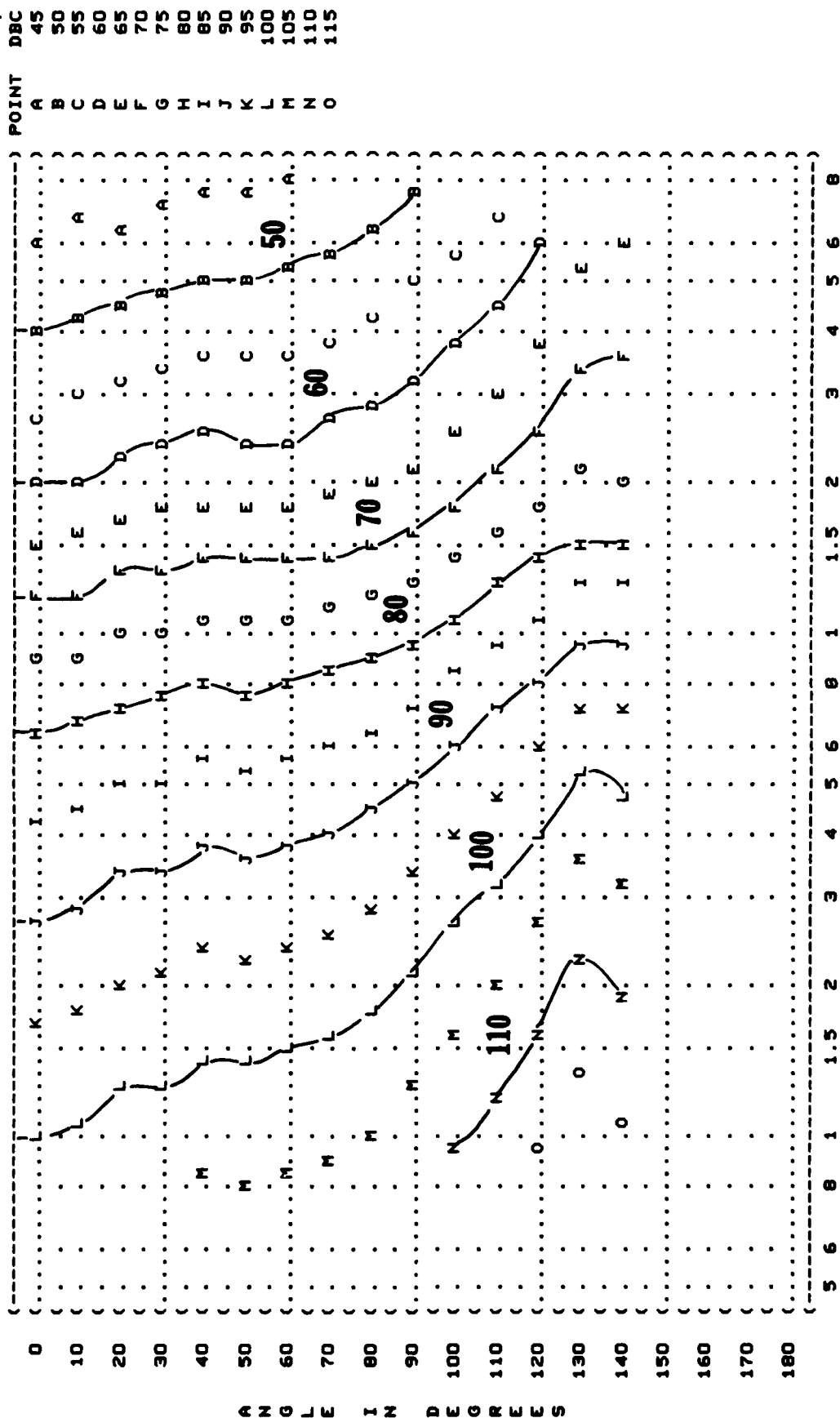
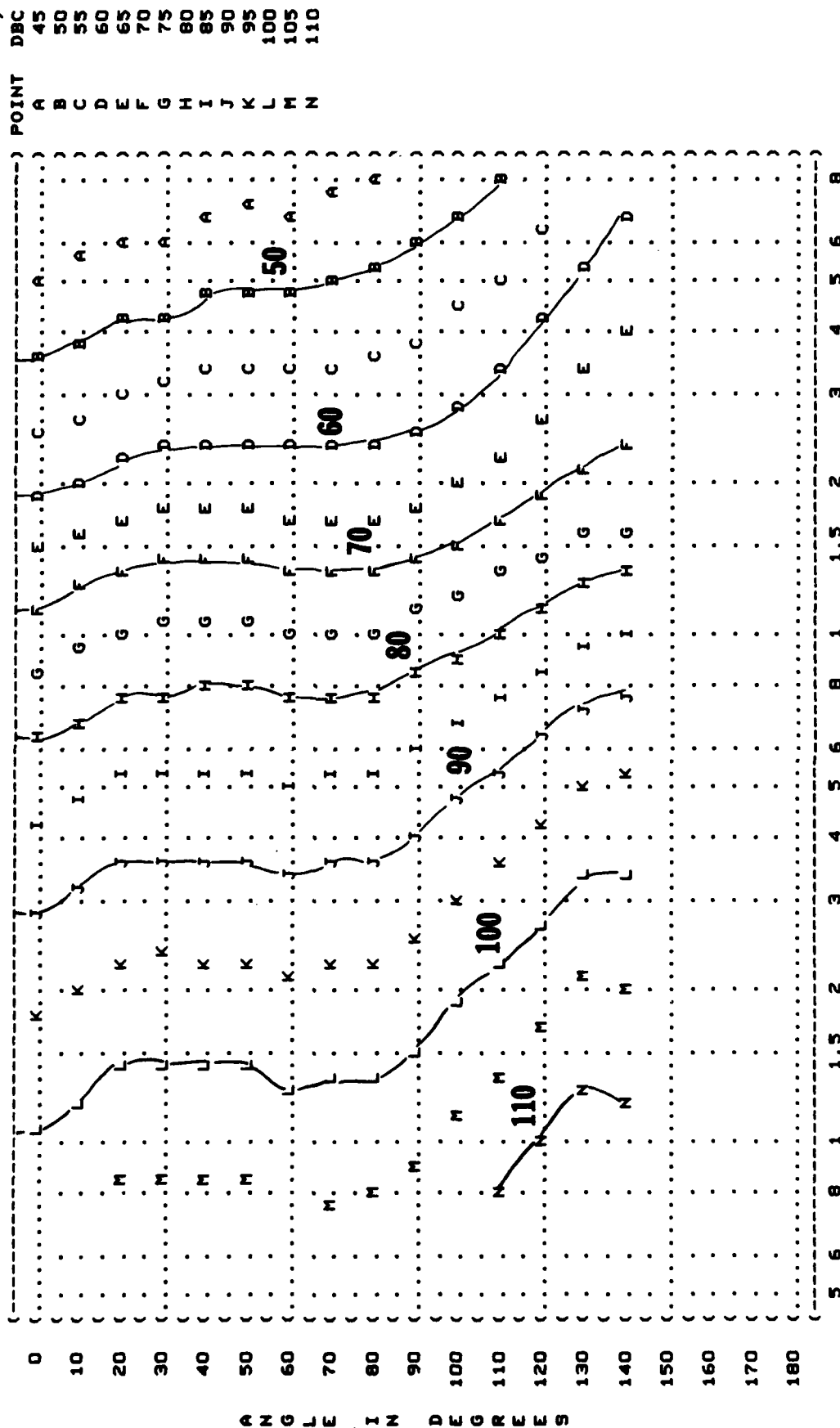


FIGURE: C-WEIGHTED OVERALL SOUND LEVEL [OASLC]  
6 EQUAL LEVEL CONTOURS (DBC)

IDENTIFICATION:  
OMEGA 1.4  
TEST BS-005-001  
RUN 04  
METEOROLOGY:  
TEMP = 15 C  
BAR PRESS = .760 M HG  
REL HUMID = 70 %  
OPERATION:  
95% RPM  
ENGINE NO. 1  
FREE FLOW  
NOISE SOURCE/SUBJECT:  
KC-10A AIRCRAFT  
CF6-50C2  
FAR FIELD NOISE  
PAGE 14



1000  
DISTANCE FROM SOURCE (METERS)

FIGURE: C-WEIGHTED OVERALL SOUND LEVEL (OASLC)  
EQUAL LEVEL CONTOURS (DBC)

6

NOISE SOURCE/SUBJECT:

OPERATION:

METEOROLOGY:

KC-10A AIRCRAFT  
CF6-50C2  
FAR FIELD NOISE

70% RPM  
ENGINE NO. 1  
FREE FLOW

TEMP = 15 C  
BAR PRESS = .760 M HG  
REL HUMID = 70 %

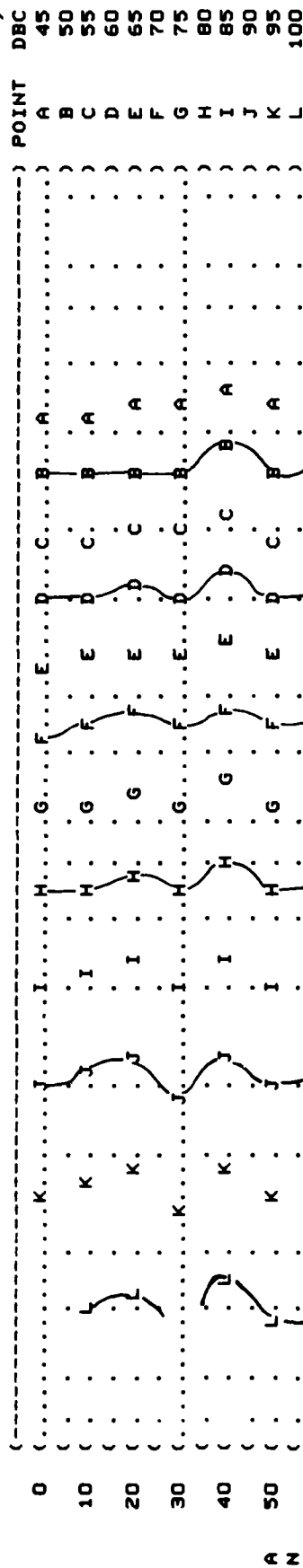
OMEGA 1.4

TEST BS-005-001

RUN 03

26 JUL 8

PAGE 14



A N G L E I N D E G R E E S

DISTANCE FROM SOURCE (METERS)



FIGURE: C-WEIGHTED OVERALL SOUND LEVEL [OASLC]  
EQUAL LEVEL CONTOURS (DBC)

6

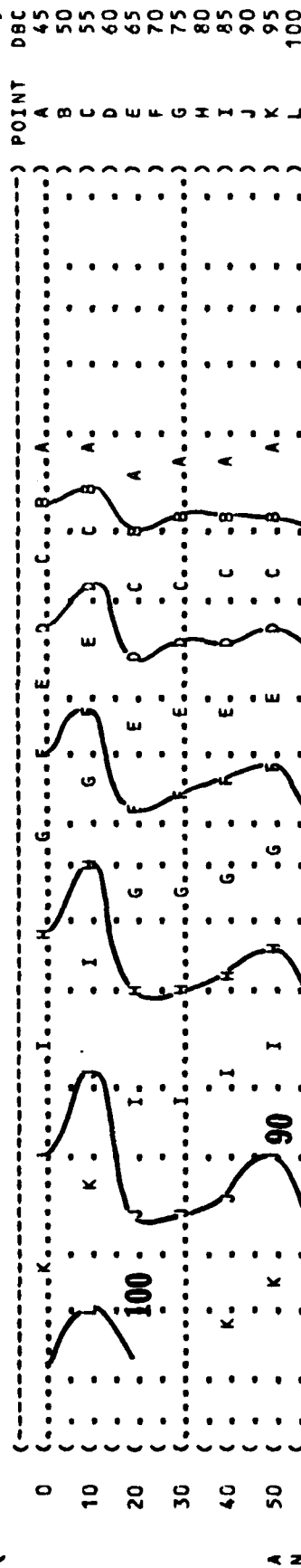
IDENTIFICATION:  
OMEGA 1.4  
TEST 85-005-001

RUN 02  
26 JUL 82  
PAGE 14

METEOROLOGY:  
TEMP = 15 C  
BAR PRESS = .760 M HG  
REL HUMID = 70 %

OPERATION:  
KC-10A AIRCRAFT  
CF6-50C2  
FREE FLOW

NOISE SOURCE/SUBJECT:



A N G L E I N D E G R E E S

FIGURE: C-WEIGHTED OVERALL SOUND LEVEL (OASLCI)  
EQUAL LEVEL CONTOURS (DBC)

6

IDENTIFICATION:  
OMEGA 1.4  
TEST 95-005-001  
RUN 01

METEOROLOGY:  
TEMP = 15 C  
BAR PRESS = .760 M HG  
REL HUMID = 70 %

OPERATION:  
IDLE POWER 23.7% RPM  
ENGINE NO. 1  
FREE FLOW

NOISE SOURCE/SUBJECT:  
KC-10A AIRCRAFT  
CF6-50C2  
FAR FIELD NOISE

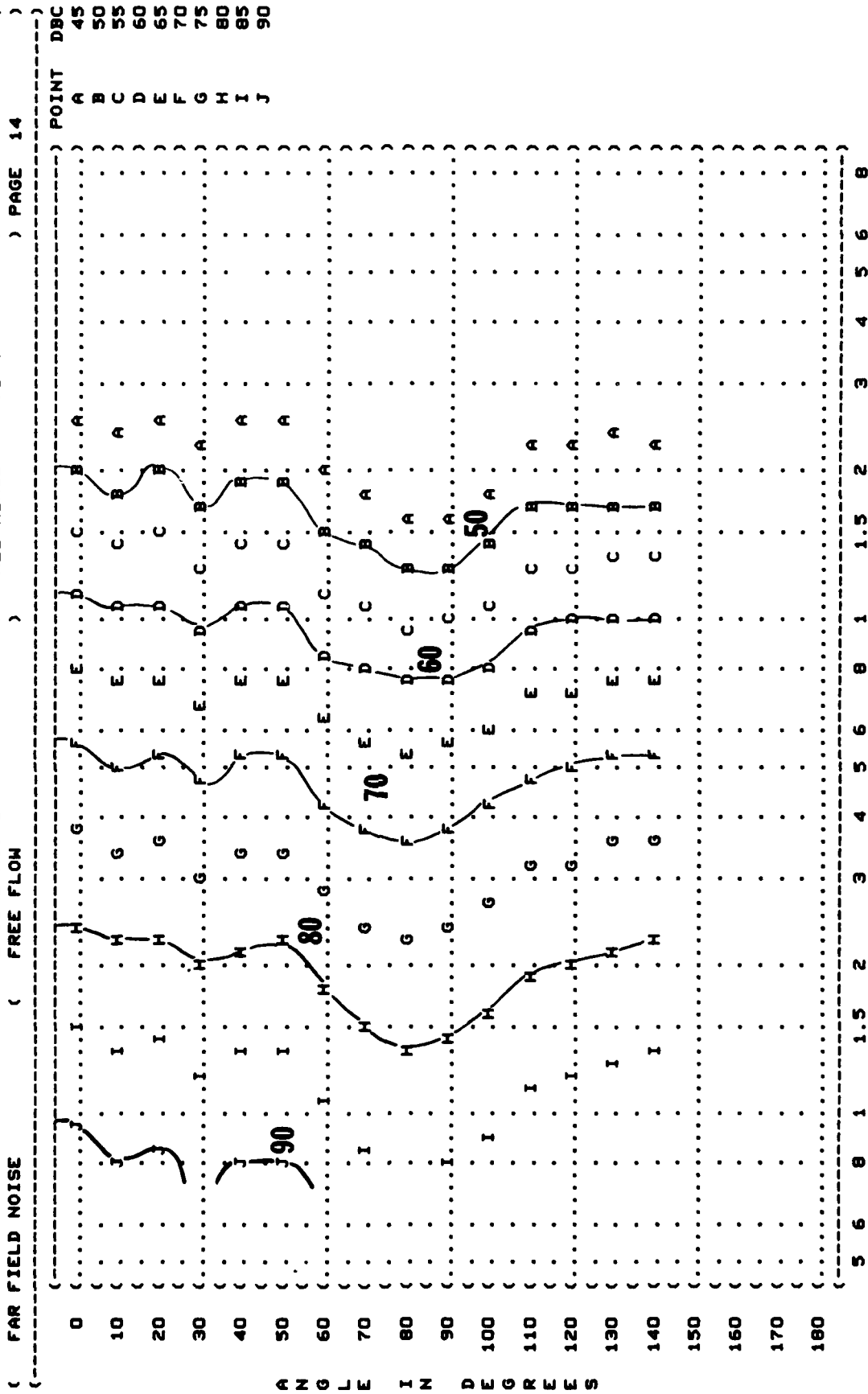


FIGURE: A-WEIGHTED OVERALL SOUND LEVEL [OASLA]  
 7  
 EQUAL LEVEL CONTOURS (DBA)

IDENTIFICATION:  
 OMEGA 1.4  
 TEST BS-005-001  
 RUN 01  
 26 JUL 82  
 PAGE 15

NOISE SOURCE/SUBJECT:  
 KC-10A AIRCRAFT  
 CF6-50C2  
 FAR FIELD NOISE

OPERATION:  
 IDLE POWER 23.7% RPM  
 ENGINE NO. 1  
 FREE FLOW

METEOROLOGY:  
 TEMP = 15 C  
 BAR PRESS = .760 M HG  
 REL HUMID = 70 %

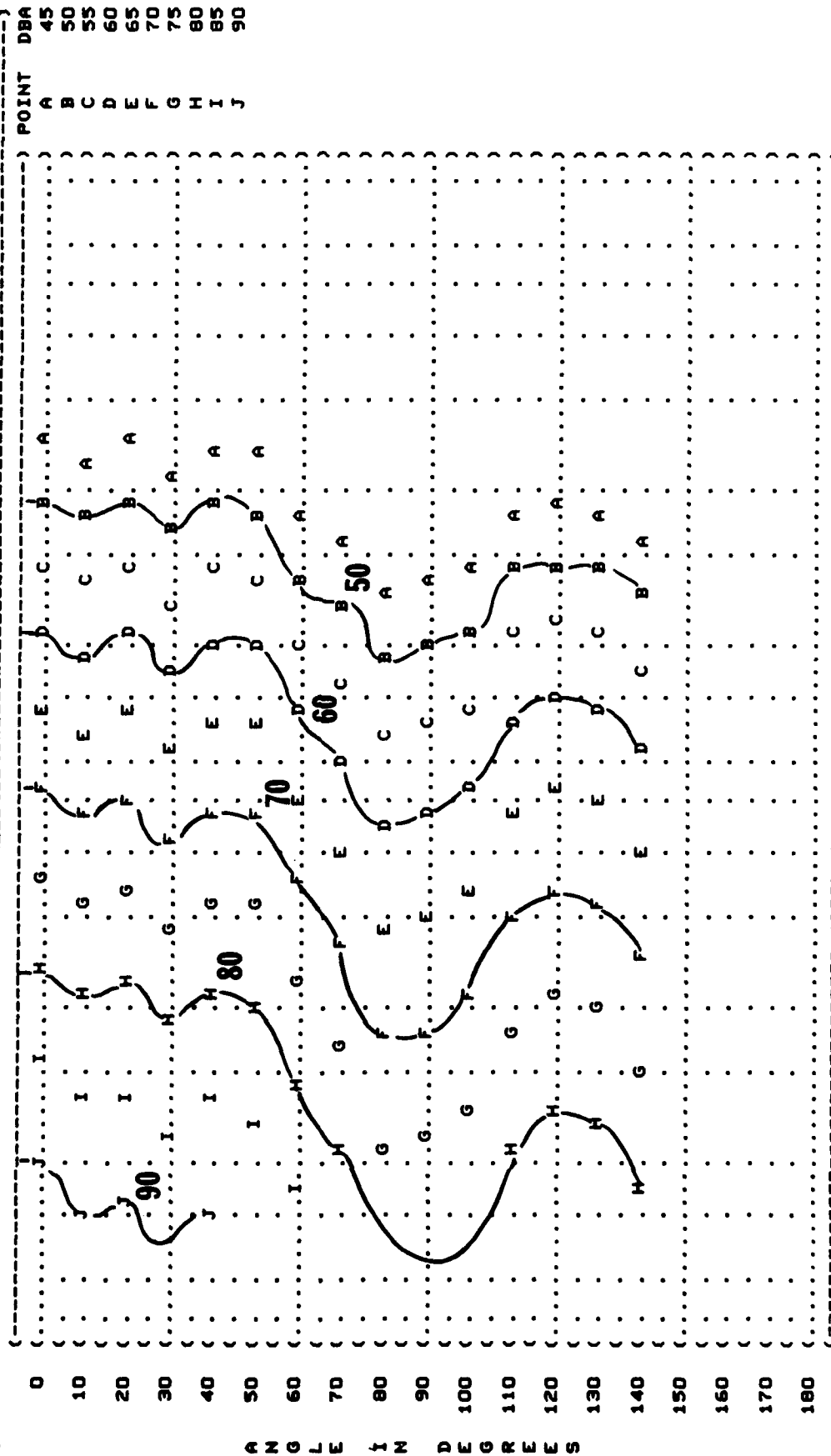


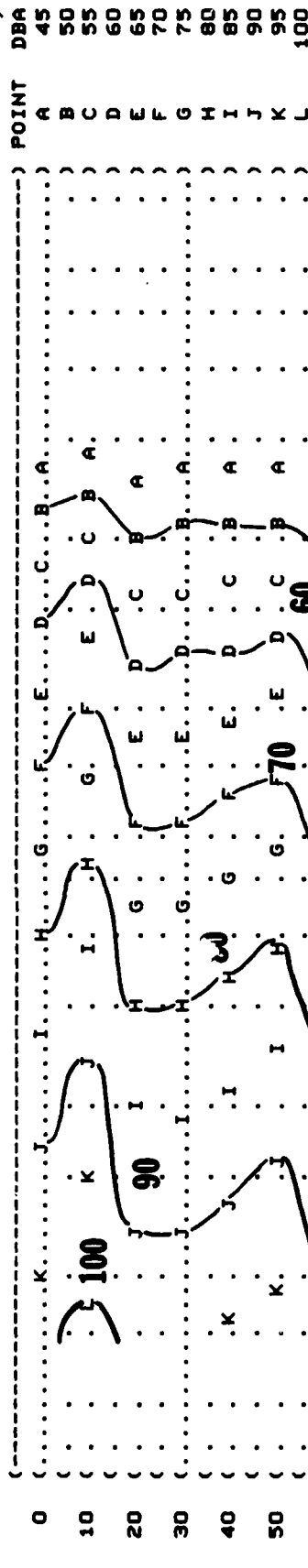
FIGURE: A-WEIGHTED OVERALL SOUND LEVEL (OASL)  
EQUAL LEVEL CONTOURS (DBA)

7

NOISE SOURCE/SUBJECT: ( OPERATION: ) METEOROLOGY: ( )  
( ) ( ) TEMP = 15 C  
( KC-10A AIRCRAFT ( 45% RPM ) BAR PRESS = .760 M HG  
( CF6-50C2 ( ENGINE NO. 1 ) REL HUMID = 70 %  
( FAR FIELD NOISE ( FREE FLOW ) )

IDENTIFICATION: )  
)  
) OMEGA 1.4  
) TEST BS-005-001  
) RUN 02  
) 26 JUL 82  
)  
) PAGE 15  
)

POINT DBA  
A 45  
B 50  
C 55  
D 60  
E 65  
F 70  
G 75  
H 80  
I 85  
J 90  
K 95  
L 100



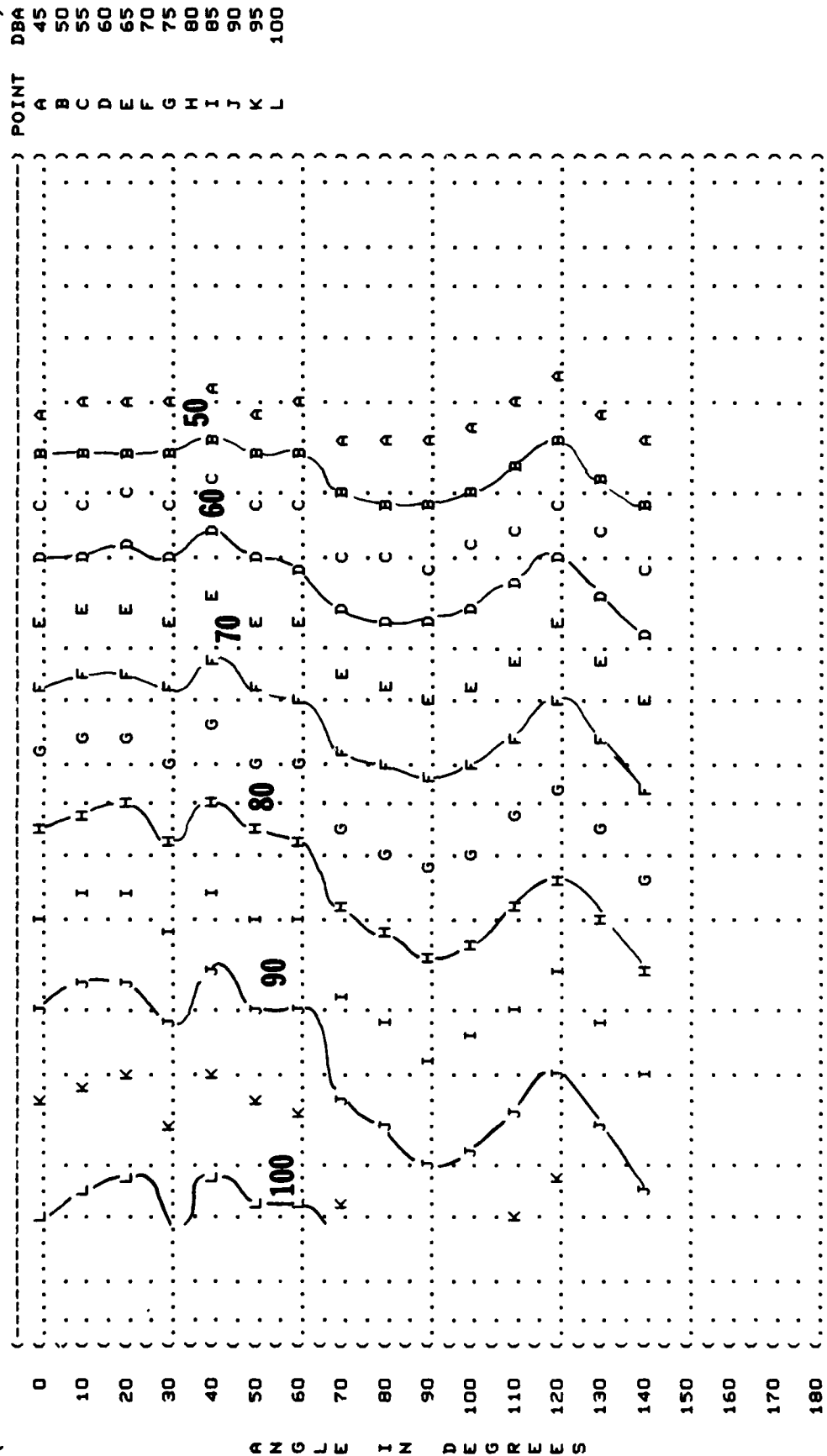
A N G L E I N D G R E E S

FIGURE: A-WEIGHTED OVERALL SOUND LEVEL (OASLA)  
7 EQUAL LEVEL CONTOURS (DBA)

IDENTIFICATION:  
OMEGA 1.4  
TEST BS-005-001  
RUN 03  
26 JUL 82  
PAGE 15

METEOROLOGY:  
TEMP = 15 C  
BAR PRESS = .760 M HG  
REL HUMID = 70 %

NOISE SOURCE/SUBJECT: ( OPERATION:  
( KC-10A AIRCRAFT ( 70% RPM  
( CF6-SOC2 ( ENGINE NO. 1  
( FAR FIELD NOISE ( FREE FLOW



5 6 8 1 1.5 2 3 4 5 6 8  
100  
1000  
DISTANCE FROM SOURCE (METERS)

A N G L E I N D E G R E E S

FIGURE: A-WEIGHTED OVERALL SOUND LEVEL (OASLA)  
 7 EQUAL LEVEL CONTOURS (DBA)

NOISE SOURCE/SUBJECT:

( ( OPERATION:  
 ( ( KC-10A AIRCRAFT  
 ( ( CF6-50C2  
 ( ( FAR FIELD NOISE

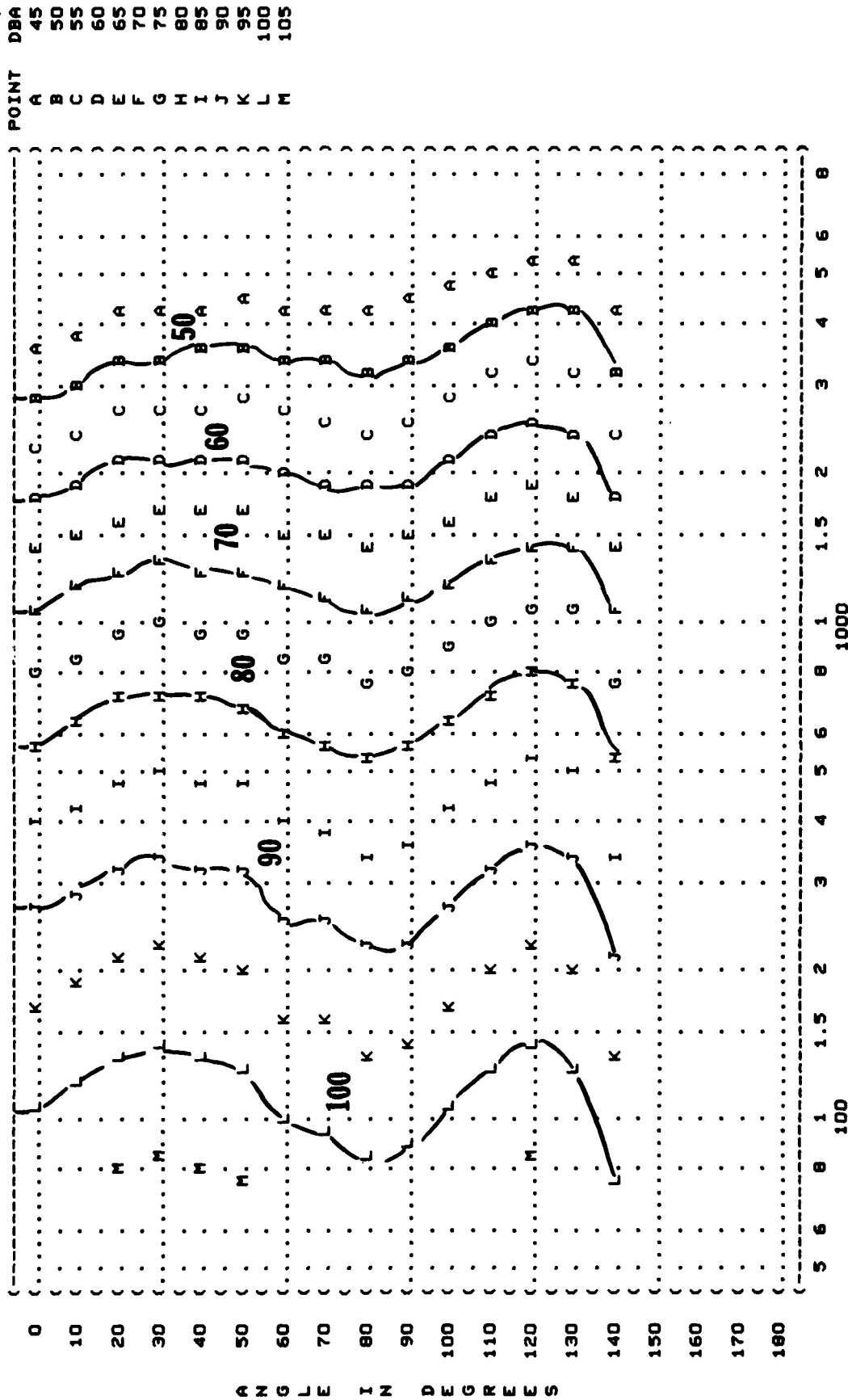
METEOROLOGY:

( ( TEMP = 15 C  
 ( ( BAR PRESS = .760 M HG  
 ( ( REL HUMID = 70 %

IDENTIFICATION:

( ( OMEGA 1.4  
 ( ( TEST BS-005-001  
 ( ( RUN 04

( ( PAGE 15

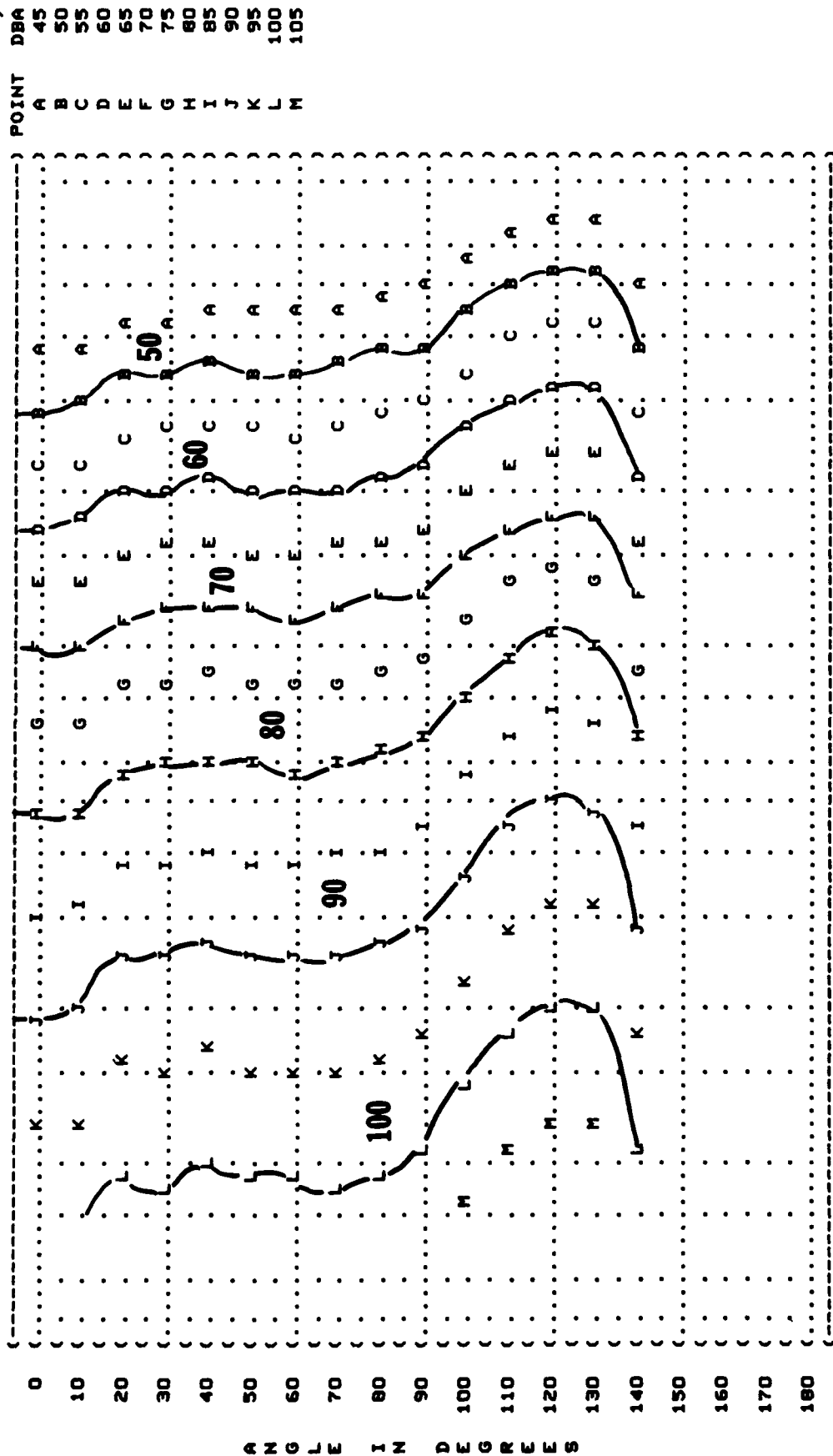


DISTANCE FROM SOURCE (METERS)

FIGURE: A-WEIGHTED OVERALL SOUND LEVEL (OASL)  
 7  
 EQUAL LEVEL CONTOURS (DBA)

IDENTIFICATION:  
 OMEGA 1.4  
 TEST BS-005-001  
 RUN 05  
 26 JUL 82  
 PAGE 15

NOISE SOURCE/SUBJECT: ( OPERATION: ) METEOROLOGY:  
 ( ( TEMP = 15 C  
 ( ( MAXIMUM CONTINUOUS POWER BAR PRESS = .760 M HG  
 ( ( ENGINE NO. 1 REL HUMID = 70 %  
 ( ( FREE FLOW ) )



( FIGURE: A-WEIGHTED OVERALL SOUND LEVEL [OASLAJ  
 ( 7 EQUAL LEVEL CONTOURS (DBA)  
 ( ) IDENTIFICATION:  
 ( ) OMEGA 1-4  
 ( ) TEST 95-005-001  
 ( ) RUN 06  
 ( ) METEORCLGY: ) TEMP = 15 C  
 ( ) BAR PRESS = .760 M HG  
 ( ) REL HUMID = 70 %  
 ( ) OPERATION: ) TAKEOFF RATED THRUST  
 ( ) ENGINE NO. 1  
 ( ) FREE FLOW  
 ( ) KC-10A AIRCRAFT  
 ( ) CF6-50C2  
 ( ) FAR FIELD NOISE  
 ( ) 26 JUL 82  
 ( ) PAGE 15

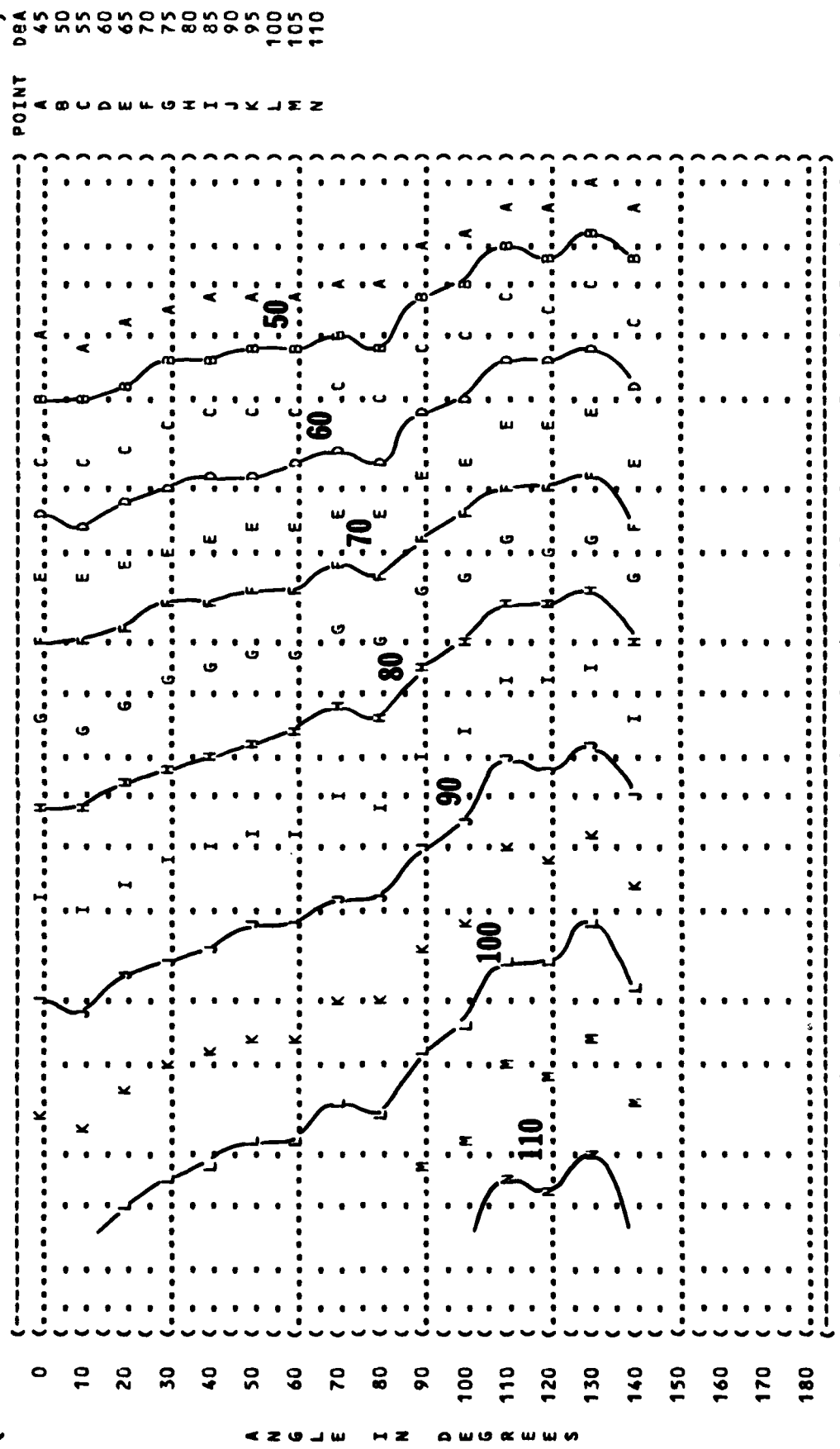




FIGURE: A-WEIGHTED OVERALL SOUND LEVEL (OASL)  
 7 EQUAL LEVEL CONTOURS (DBA)

NOISE SOURCE/SUBJECT:

OPERATION:

METEOROLOGY:

IDENTIFICATION:

OMEGA 1.4

TEST BS-005-001

RUN 07

26 JUL 82

TEMP = 15 C

BAR PRESS = .760 M HG

REL HUMID = 70 %

PAGE 15

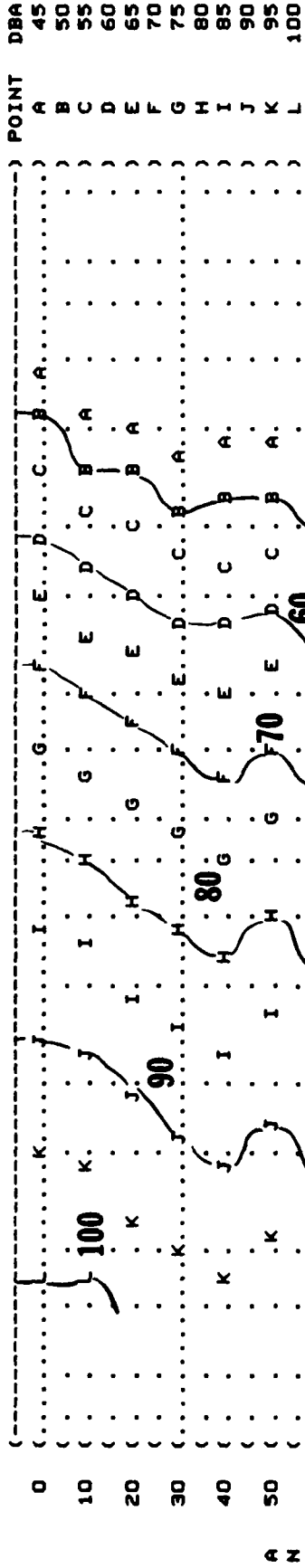
45% RPM ALL ENGINES

FREE FLOW

KC-10A AIRCRAFT

CF6-50C2

FAR FIELD NOISE



ANGL E I N D E R E S

DISTANCE FROM SOURCE (METERS)

FIGURE: A-WEIGHTED OVERALL SOUND LEVEL (OASLA)  
7  
EQUAL LEVEL CONTOURS (DBA)

NOISE SOURCE/SUBJECT:

OPERATION:

METEOROLOGY:

IDENTIFICATION:

OMEGA 1.4

TEST BS-005-001

RUN 08

TEMP = 15 C

BAR PRESS = .760 M HG

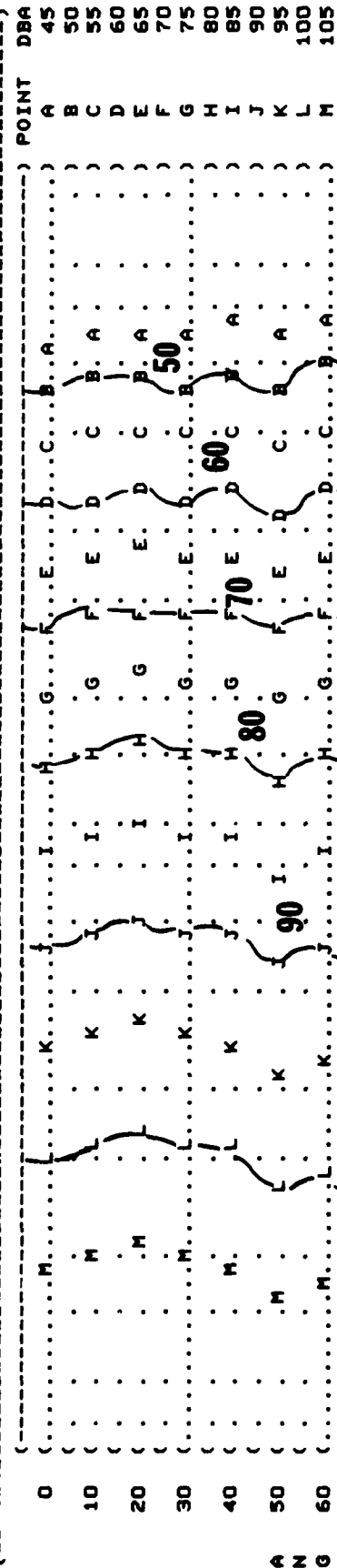
REL HUMID = 70 %

PAGE 15

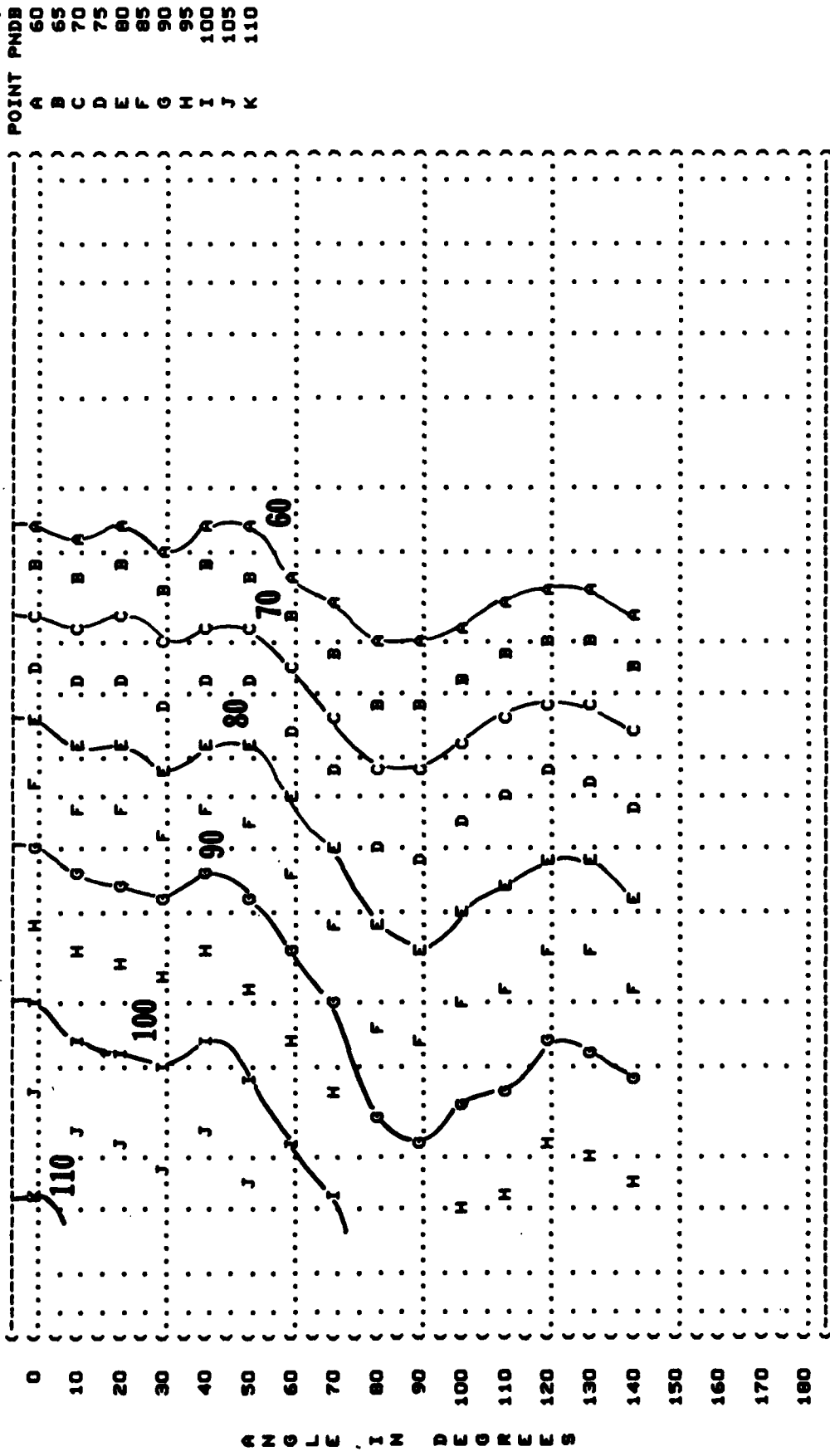
95X RPM ALL ENGINES

FREE FLOW

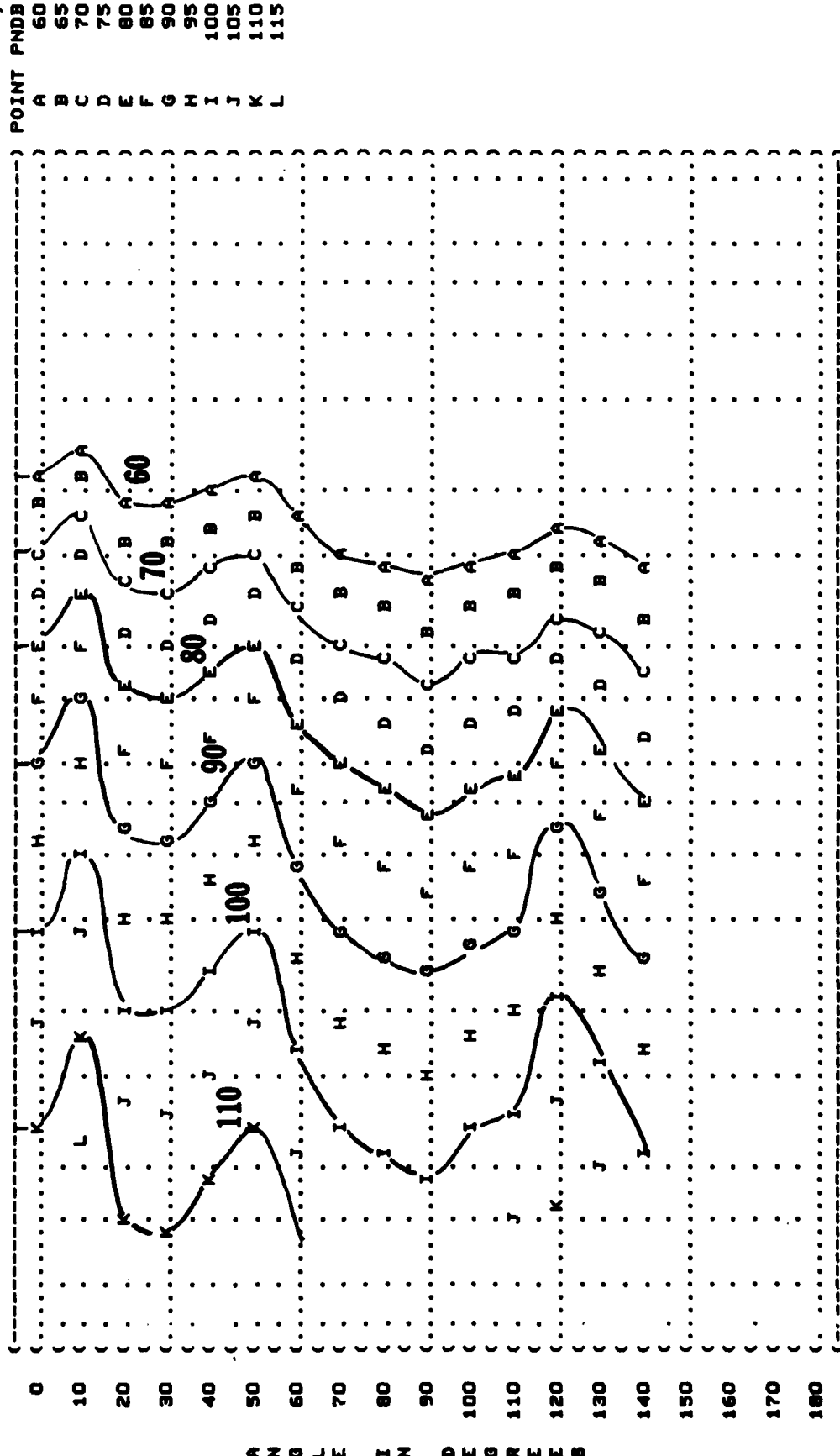
FAR FIELD NOISE



) FIGURE: PERCEIVED NOISE LEVEL WITH SMOOTH TONE CORRECTION (PNLT)  
 ) 8. EQUAL LEVEL CONTOURS (PNDB)  
 ) IDENTIFICATION:  
 ) OMEGA 1.4  
 ) TEST BS-005-001  
 ) RUN 01  
 ) METEOROLOGY:  
 ) TEMP = 15 C  
 ) BAR PRESS = .760 M HG  
 ) REL HUMID = 70 %  
 ) 26 JUL 82  
 ) PAGE 16



( FIGURE: PERCEIVED NOISE LEVEL WITH SMOOTH TONE CORRECTION (PNLT)  
 ( 8 EQUAL LEVEL CONTOURS (PNDB)  
 ( NOISE SOURCE/SUBJECT: ( OPERATION:  
 ( KC-10A AIRCRAFT ( 45X RPM  
 ( CF6-50C2 ( ENGINE NO. 1  
 ( FAR FIELD NOISE ( FREE FLOW  
 ( METEOROLOGY:  
 ( TEMP = 15 C  
 ( BAR PRESS = .760 M HG  
 ( REL HUMID = 70 %  
 ( IDENTIFICATION:  
 ( OMEGA 1.4  
 ( TEST BS-005-001  
 ( RUN 02  
 ( 26 JUL 82  
 ( PAGE 16



A N G L E I N D E G R E E S

IDENTIFICATION:

OMEGA 1

) METEOROLOGY:

**03 RUN**

BAR PRESS = .760 M HG

REL HUMID = 70 x

**PAGE 16**

620 LE HZ ALE 024555



### EQUAL LEVEL CONTOURS (PNDB)

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88

## OMEGA 1.4

**TEST 86-005-001**

**05 RUN**

**METEOROLOGY:**

TEMP = 15 C

BAR PRESS = .760 M HG ) 26 JUL 82

REL HUMID = 70 % )

) PAGE 16

**OPERATION:**

—

**MAXIMUM CONTINUOUS POWER**

**ENGINE NO. 1**

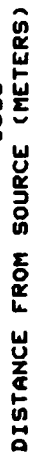
**FREE FLOW**

**DISSE SOURCE/SUBJECT:**

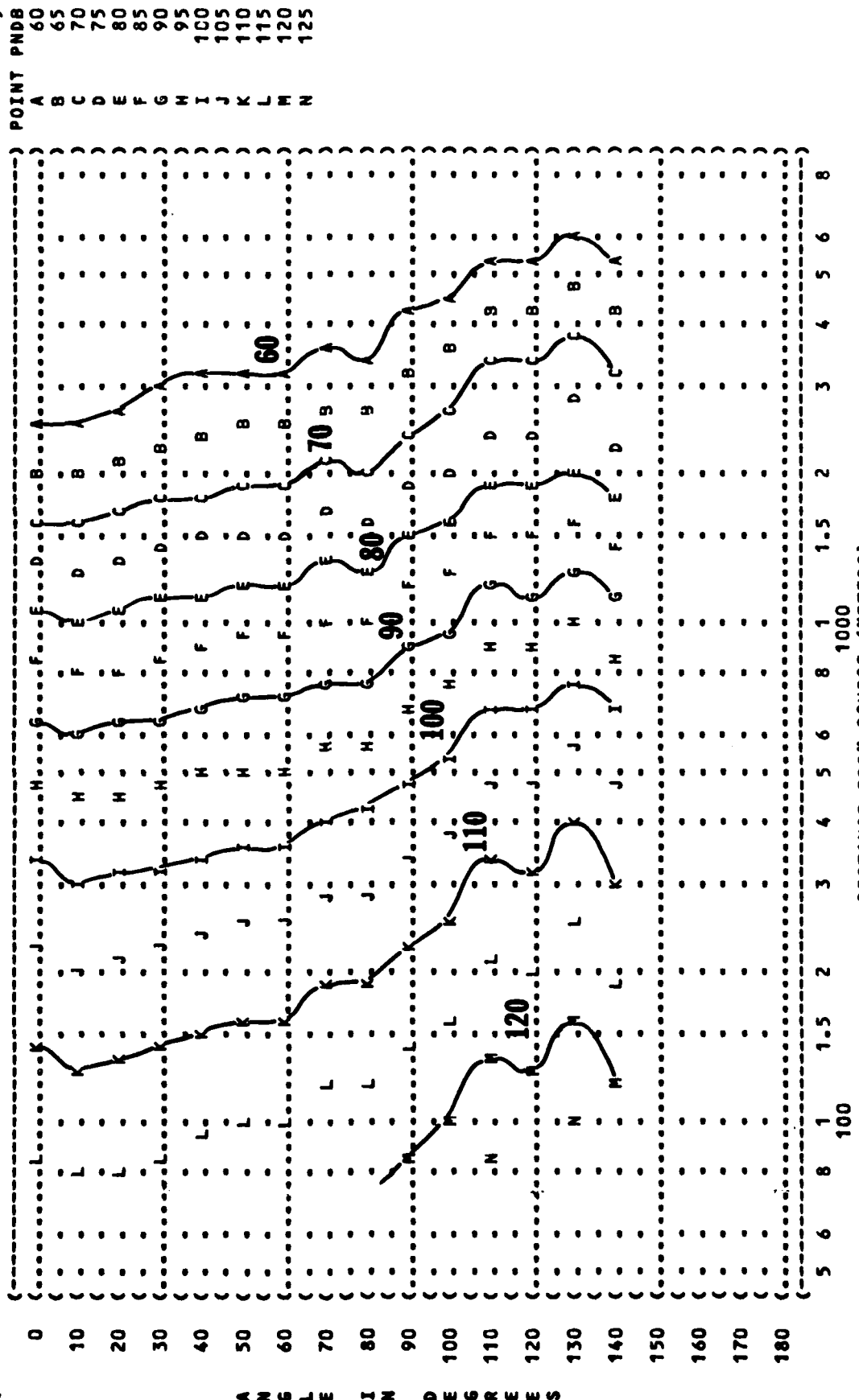
**KC-10A AIRCRAFT**

**CF 6-50C2**

## FAR FIELD NOISE

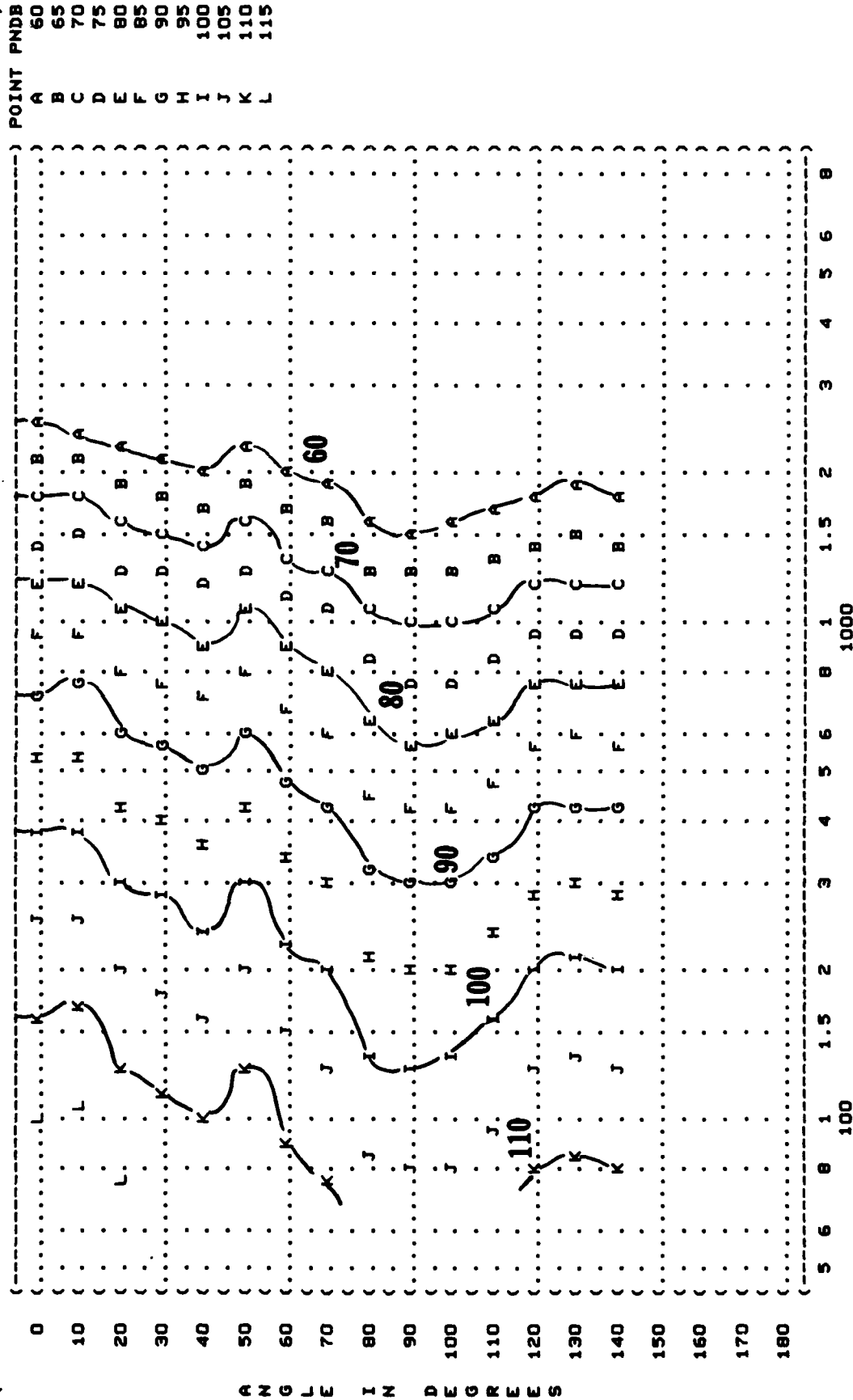


```
(-----)
( FIGURE: PERCEIVED NOISE LEVEL WITH SMOOTH TONE CORRECTION [PNLT] )
(      8      EQUAL LEVEL CONTOURS (PNDB) )
(-----)
( NOISE SOURCE/SUBJECT: )
( KC-10A AIRCRAFT )
( CF6-50C2 )
( FAR FIELD NOISE )
( OPERATION: )
( TAKEOFF RATED THRUST )
( ENGINE NO. 1 )
( FREE FLOW )
( METEOROLOGY: )
( TEMP = 15 C )
( BAR PRESS = -760 M HG )
( REL HUMID = 70 % )
( IDENTIFICATION: )
( OMEGA 1.4 )
( TEST BS-005-001 )
( RUN 06 )
( PAGE 16 )
(-----)
```





( FIGURE: PERCEIVED NOISE LEVEL WITH SMOOTH TONE CORRECTION [PNLT]  
 ( 8 EQUAL LEVEL CONTOURS (PNDB)  
 ( ) IDENTIFICATION:  
 ( ) OMEGA 1.4  
 ( ) TEST BS-005-001  
 ( ) RUN 07  
 ( ) METEOROLOGY:  
 ( ) TEMP = 15 C  
 ( ) BAR PRESS = .760 M HG  
 ( ) REL HUMID = 70 %  
 ( ) PAGE 16  
 ( ) NOISE SOURCE/SUBJECT: ( OPERATION:  
 ( ) KC-10A AIRCRAFT ( 45% RPM ALL ENGINES  
 ( ) CF6-50C2 ( FREE FLOW  
 ( ) FAR FIELD NOISE ( )



**IDENTIFICATION:**

**OMEGA 1.6**

**( OPERATION:**

) METEOROLOGY:

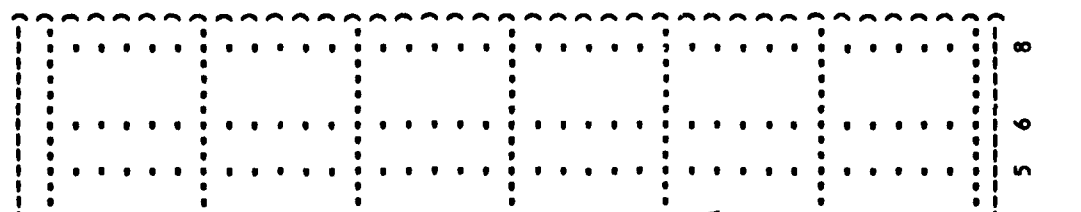
( 95% RPM ALL ENGINES  
( FREE FLOW  
(

TEMP = 15 C  
BAR PRESS = -760 MM HG  
REL HUMID = 70 %

**PAGE 16**

POINT	A	B	C	D	E	F	G	H	I	J	K	L	M	N
PND8	60	65	70	75	80	85	90	95	100	105	110	115	120	125

	X	L	M	N
110				
115				
120				
125				



**IDENTIFICATION:**

### EQUAL LEVEL CONTOURS (DB)

## OMEGA 1.4

**TEST BS-003-001**

**NOISE SOURCE/SUBJECT:**

**OPERATION:**

### D. METEOROLOGY:

**KC-10A AIRCRAFT**

**IDLE POWER 23.7x RPM**

TEMP = 15 C  
BAR PRESS = .760 M HG

**CF6-50C2**

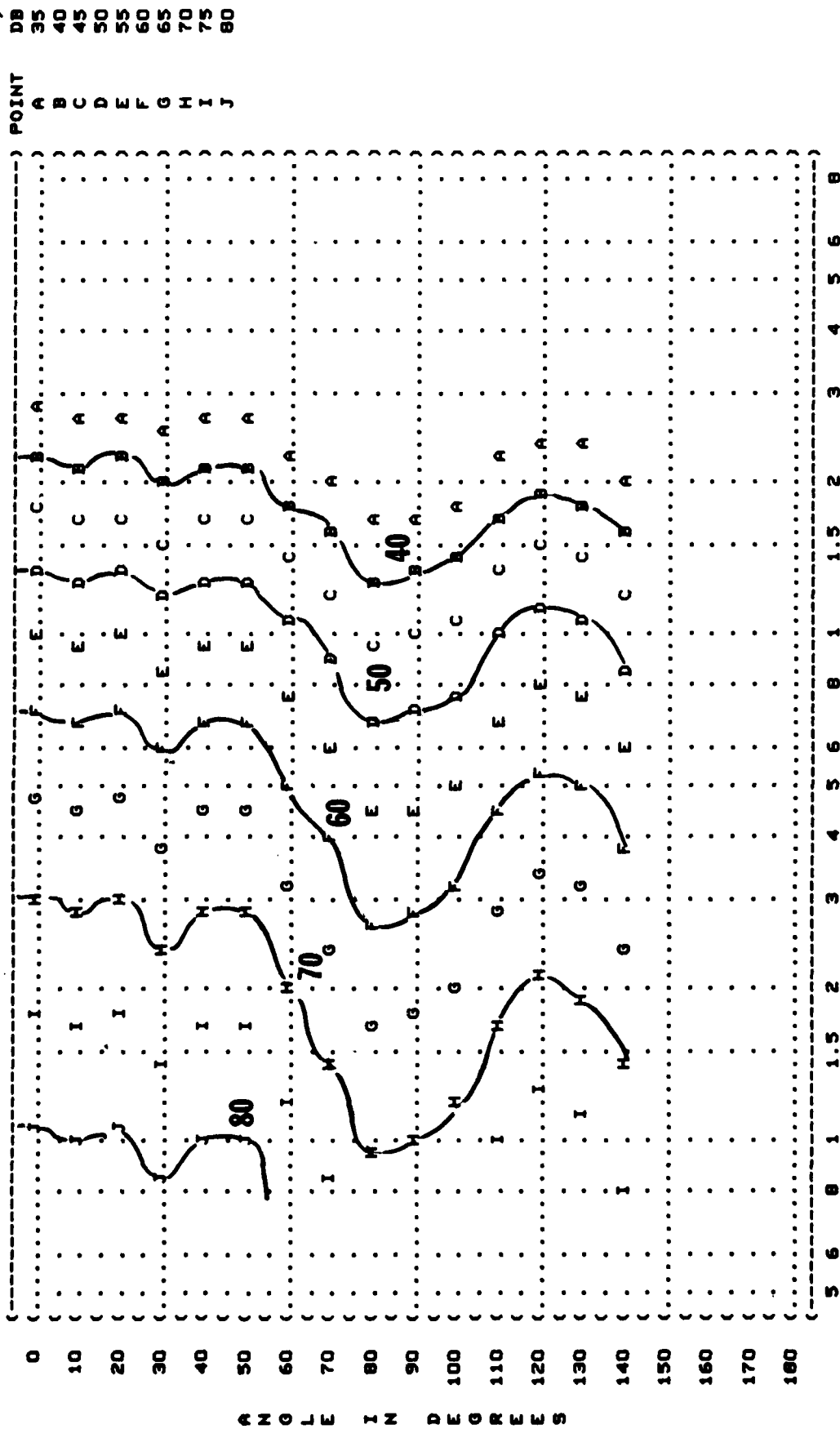
**ENGINE NO. 1**

REL HUMID = 70 %

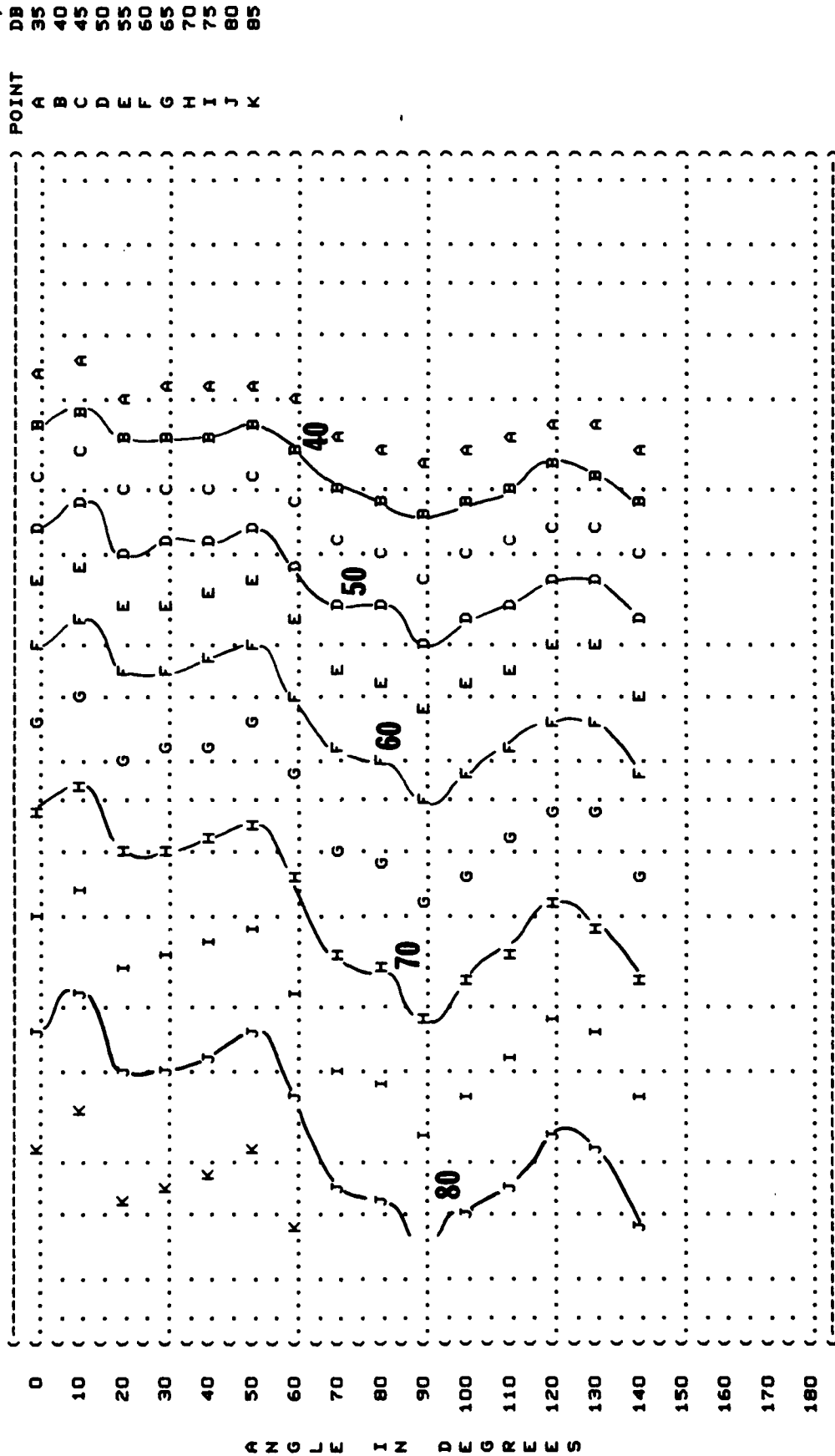
## FAR FIELD NOISE

# FREE FLOW

.....



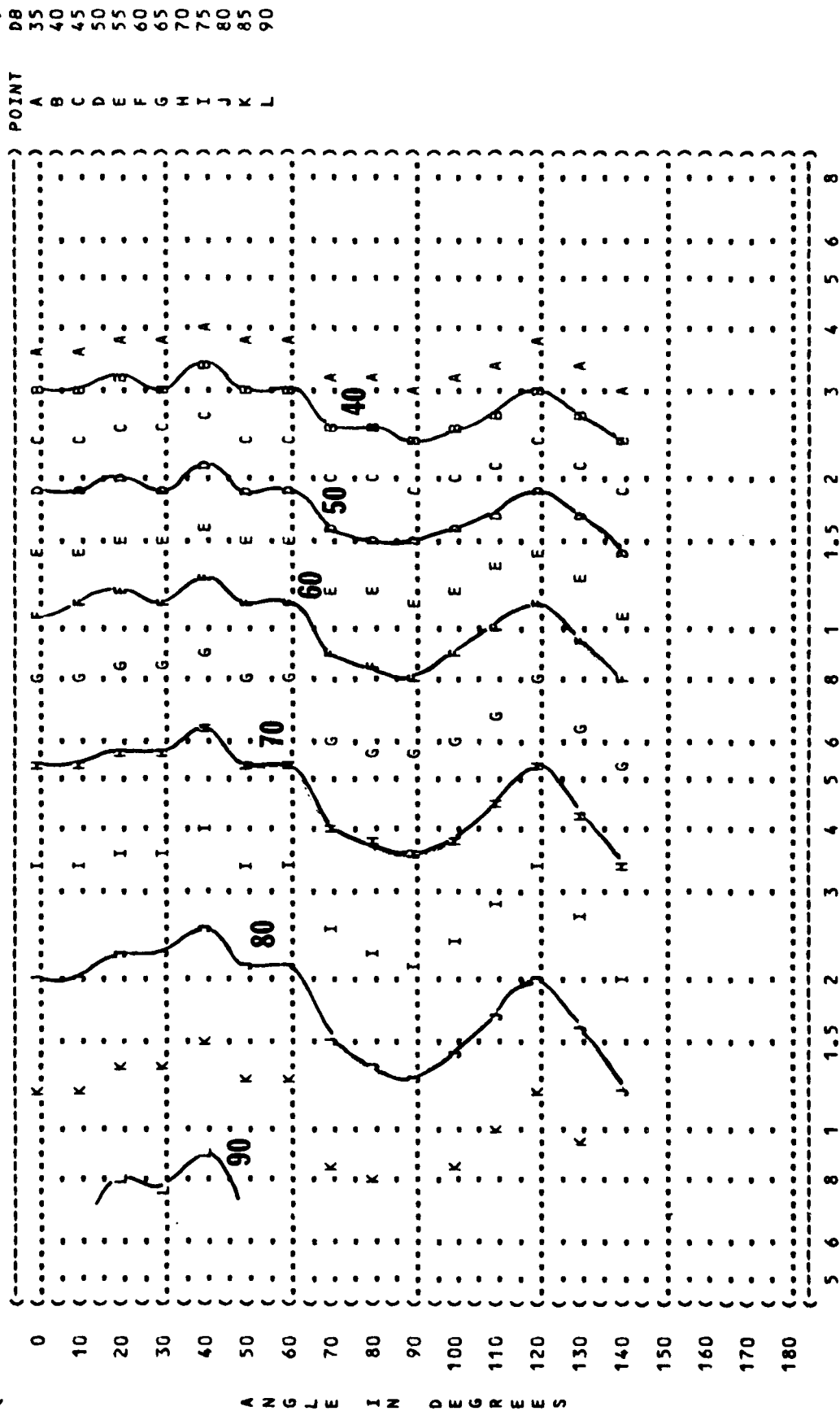
( FIGURE: PREFERRED SPEECH INTERFERENCE LEVEL (PSIL)  
 ( 9 EQUAL LEVEL CONTOURS (DB)  
 ( ) IDENTIFICATION:  
 ( ) OMEGA 1.4  
 ( ) TEST BS-005-001  
 ( ) RUN 02  
 ( )  
 ( NOISE SOURCE/SUBJECT: ( OPERATION: ) METEOROLOGY:  
 ( ) TEMP = 15 C  
 ( KC-10A AIRCRAFT ( 45% RPM ( BAR PRESS = .760 M HG  
 ( CF6-50C2 ( ENGINE NO. 1 ( REL HUMID = 70 %  
 ( FAR FIELD NOISE ( FREE FLOW ( )  
 ( ) PAGE 17



A N G L E I N D E G R E E S

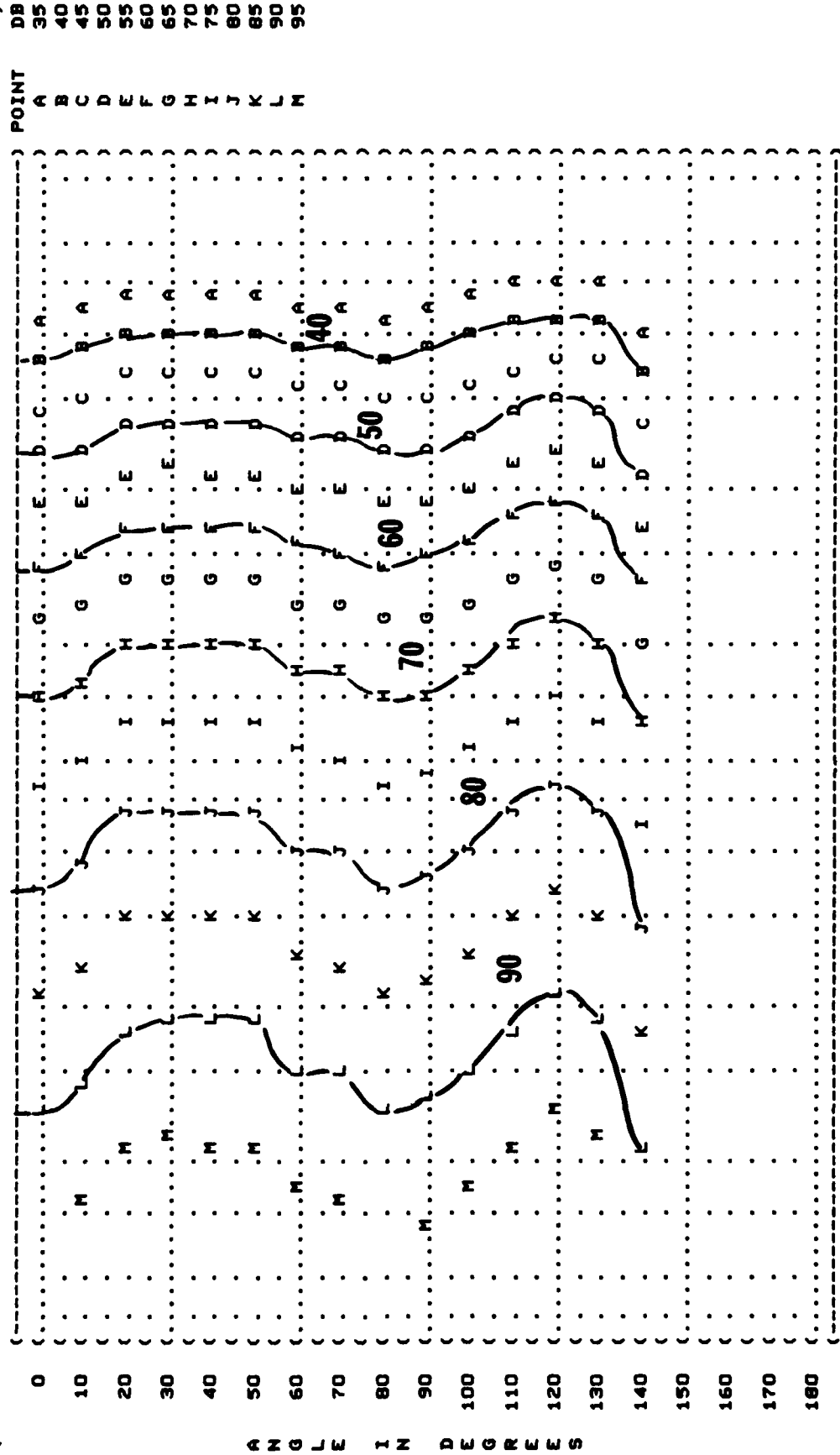
FIGURE: PREFERRED SPEECH INTERFERENCE LEVEL [PSIL]  
 9 EQUAL LEVEL CONTOURS (DB)

IDENTIFICATION:  
 OMEGA 1.4  
 TEST BS-005-001  
 RUN 03  
 METEOROLOGY:  
 TEMP = 15 C  
 BAR PRESS = .760 M HG  
 REL HUMID = 70 %  
 OPERATION:  
 70% RPM  
 ENGINE NO. 1  
 FREE FLOW  
 NOISE SOURCE/SUBJECT:  
 KC-10A AIRCRAFT  
 CF6-50C2  
 FAR FIELD NOISE



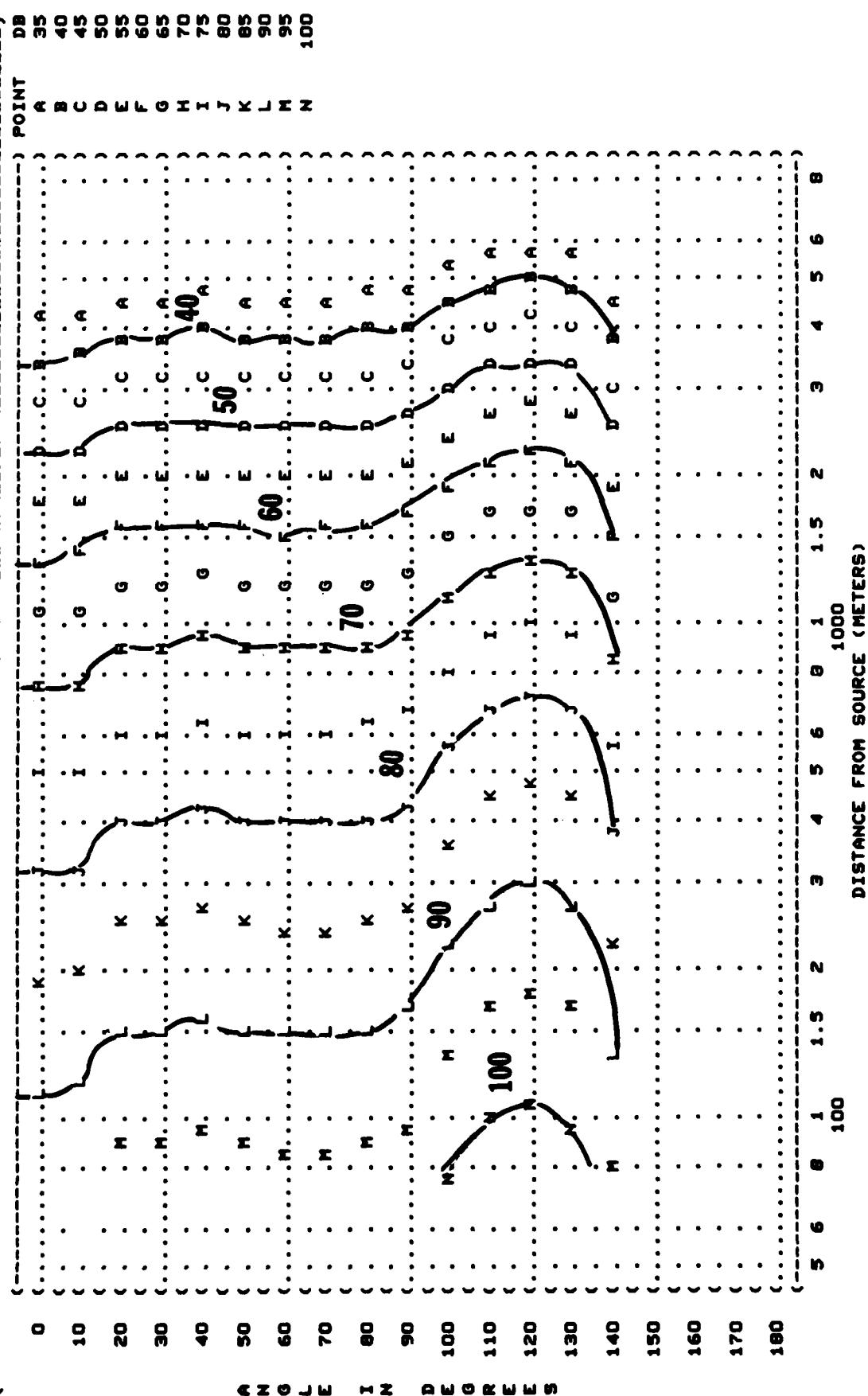
DISTANCE FROM SOURCE (METERS)

( FIGURE: 9  
 ( PREFERRED SPEECH INTERFERENCE LEVEL (PSIL)  
 ( EQUAL LEVEL CONTOURS (DB)  
 ( IDENTIFICATION:  
 ( OMEGA 1.4  
 ( TEST BS-003-001  
 ( RUN 04  
 ( NOISE SOURCE/SUBJECT: ( OPERATION: ( METEOROLOGY:  
 ( KC-10A AIRCRAFT ( 95% RPM ( TEMP = 15 C  
 ( CF6-50C2 ( ENGINE NO. 1 ( BAR PRESS = .760 M HG  
 ( FAR FIELD NOISE ( FREE FLOW ( REL HUMID = 70 X  
 ( PAGE 17



DB 35  
 40  
 45  
 50  
 55  
 60  
 65  
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 75  
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 85  
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 95  
 POINT A B C D E F G H I J K L M  
 DISTANCE FROM SOURCE (METERS)  
 0.5 1 1.5 2 3 4 5 6 8 10 100 1000

( FIGURE: PREFERRED SPEECH INTERFERENCE LEVEL (PSIL)  
 ( 9 EQUAL LEVEL CONTOURS (DB)  
 ( ) IDENTIFICATION:  
 ( ) OMEGA 1.4  
 ( ) TEST BS-005-001  
 ( ) RUN 05  
 ( NOISE SOURCE/SUBJECT: ( OPERATION: ) METEOROLOGY:  
 ( ) KC-10A AIRCRAFT ( ) TEMP = 15 C  
 ( ) CFS-50C2 ( ) MAXIMUM CONTINUOUS POWER ( ) BAR PRESS = .760 M HG  
 ( ) FAR FIELD NOISE ( ) ENGINE NO. 1 ( ) REL HUMID = 70 %  
 ( ) FREE FLOW ( ) PAGE 17

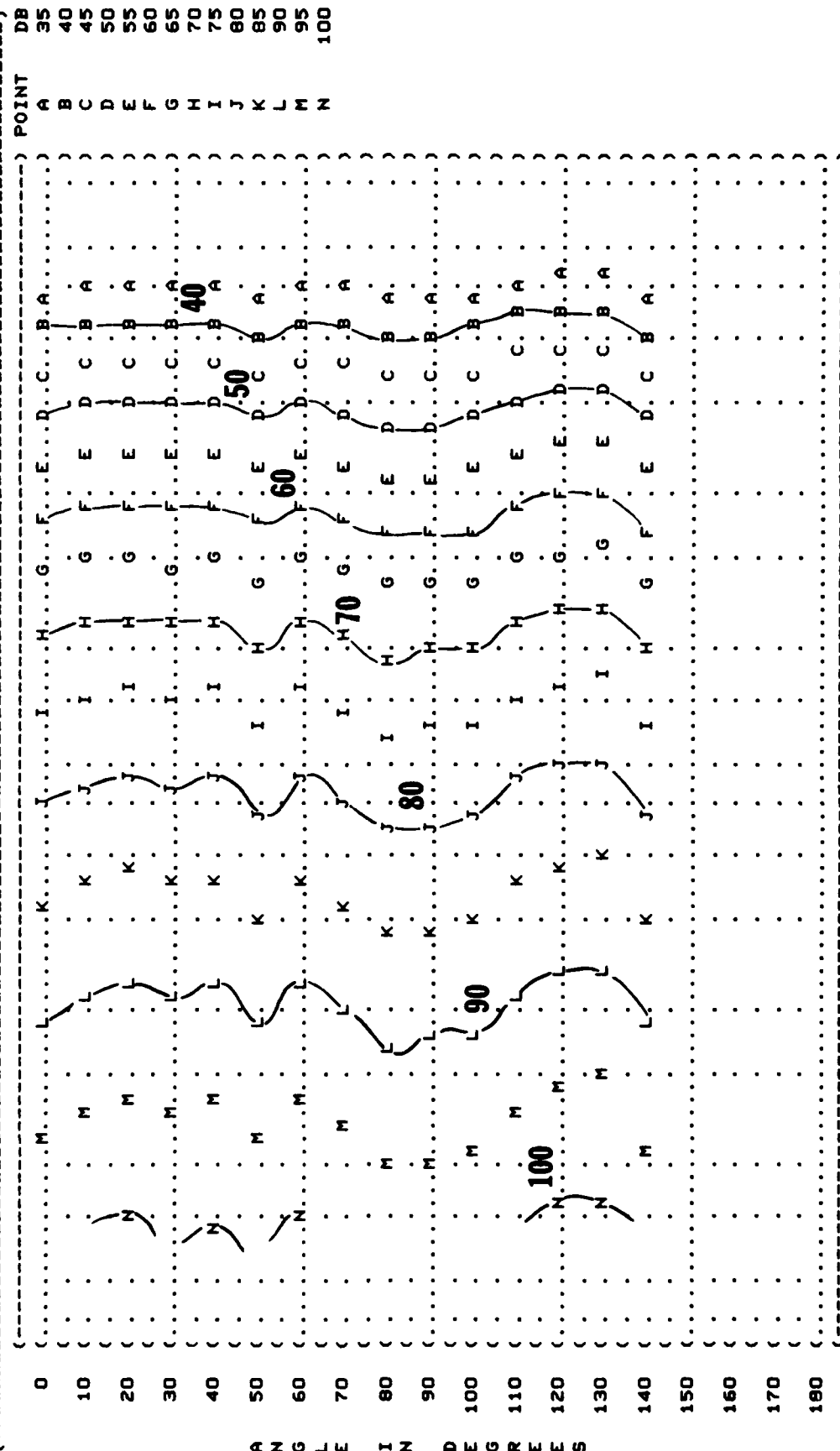








( FIGURE: PREFERRED SPEECH INTERFERENCE LEVEL (PSIL)  
 ( 9 EQUAL LEVEL CONTOURS (DB)  
 ( ) IDENTIFICATION:  
 ( ) OMEGA 1.4  
 ( ) TEST BS-005-001  
 ( ) RUN OB  
 ( NOISE SOURCE/SUBJECT: ( OPERATION: ) METEOROLOGY:  
 ( ) TEMP = 15 C  
 ( KC-10A AIRCRAFT ( 95% RPM ALL ENGINES  
 ( CF6-50C2 ( FREE FLOW  
 ( FAR FIELD NOISE ( )  
 ( ) BAR PRESS = .760 M HG  
 ( ) REL HUMID = 70 %  
 ( ) PAGE 17





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PAGE 8

0201W HZ AWO000000

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14

DISTANCE FROM SOURCE (METERS)

FIGURE: MAXIMUM PERMISSIBLE TIME [T] FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)  
 EQUAL TIME CONTOURS (MINUTES)  
 10  
 NO PROTECTION  
 IDENTIFICATION:  
 )  
 ) OMEGA 1.4  
 )

10 NO PROTECTION ) OMEGA 1.4 )  
(-----) TEST BS-005-001 )  
( NOISE SOURCE/SUBJECT: ( OPERATION: ) METEOROLOGY: )  
( ) RUN 02 )

NOISE SOURCE/SUBJECT:	OPERATION:	METEOROLOGY:	RUN
KC-10A AIRCRAFT	45X RPM	TEMP = 15 C	02
CF6-50C2	ENGINE NO. 1	BAR PRESS = .760 M HG	26 JUL 82
FAR FIELD NOISE	FREE FLOW	REL HUMID = 70 %	PAGE 7

	(	-	-	-	)	MIN	POINT	
0	(	.	E	.	C	.	A	960
	(	.	D	.	B	.	B	480
10	(	.	F	.	C	.	C	240
	(	.	E	.	A	.	D	120
20	(	.	C	.	B	.	E	60
	(	.	B	.	A	.	F	30

**ANGLE IN DEGREES**

44

DISTANCE FROM SOURCE (METERS)



FIGURE: MAXIMUM PERMISSIBLE TIME [T] FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)  
 10  
 EQUAL TIME CONTOURS (MINUTES)  
 NO PROTECTION

IDENTIFICATION:

OMEGA 1.4

TEST BS-005-001

RUN 03

METEOROLOGY:

TEMP = 15 C

BAR PRESS = .760 M HG

REL HUMID = 70 %

70X RPM

ENGINE NO. 1

FREE FLOW

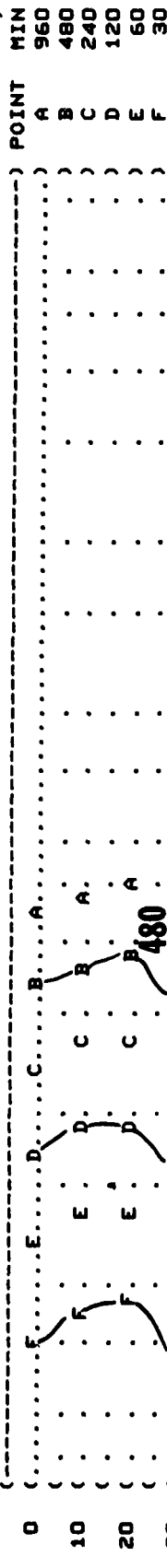
NOISE SOURCE/SUBJECT:

KC-10A AIRCRAFT

CF6-50C2

FAR FIELD NOISE

PAGE 7



A N G L E I N D E G R E E S

DISTANCE FROM SOURCE (METERS)

100

1000

( FIGURE: MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73) ) IDENTIFICATION:  
 ( 10 EQUAL TIME CONTOURS (MINUTES) )  
 ( ) OMEGA 1.4  
 ( ) TEST BS-005-001  
 ( ) RUN 03  
 ( ) METEOROLOGY:  
 ( ) TEMP = 15 C  
 ( ) BAR PRESS = .760 M HG  
 ( ) REL HUMID = 70 %  
 ( ) OPERATION:  
 ( ) 70X RPM  
 ( ) ENGINE NO. 1  
 ( ) FREE FLOW  
 ( ) NOISE SOURCE/SUBJECT:  
 ( ) KC-10A AIRCRAFT  
 ( ) CF6-50C2  
 ( ) FAR FIELD NOISE  
 ( ) PAGE 8

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 10<  
 20<  
 30<  
 40<  
 50<  
 60<  
 70<  
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 110<  
 120<  
 130<  
 140<  
 150  
 160  
 170  
 180

PERSONNEL MAY BE EXPOSED UP TO 960 MINUTES PER DAY  
 AT ALL DISTANCES FROM SOURCE EQUAL TO OR GREATER THAN 75 METERS  
 FOR ALL ANGLES EVALUATED (INDICATED BY < AT LEFT)  
 UNDER THE FOLLOWING EAR PROTECTION CONDITIONS:

- MINIMUM GPL EAR MUFFS
- AMERICAN OPTICAL 1700 EAR MUFFS
- U-51R EAR PLUGS
- COMFIT TRIPLE FLANGE EAR PLUGS
- H-133 GROUND COMMUNICATION UNIT

5 6 8 1 1.5 2 3 4 5 6 8 1000  
 100  
 DISTANCE FROM SOURCE (METERS)

A  
 N  
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 E  
 E  
 S



FIGURE: MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73) IDENTIFICATION:  
 10 EQUAL TIME CONTOURS (MINUTES)  
 NO PROTECTION  
 NOISE SOURCE/SUBJECT: OPERATION: METEOROLOGY: TEMP = 15 C  
 KC-10A AIRCRAFT 95X RPM BAR PRESS = .760 M HG  
 CF6-SOC2 ENGINE NO. 1 REL HUMID = 70 %  
 FAR FIELD NOISE FREE FLOW  
 OMEGA 1.4  
 TEST BS-005-001  
 RUN 04  
 26 JUL 82  
 PAGE 7

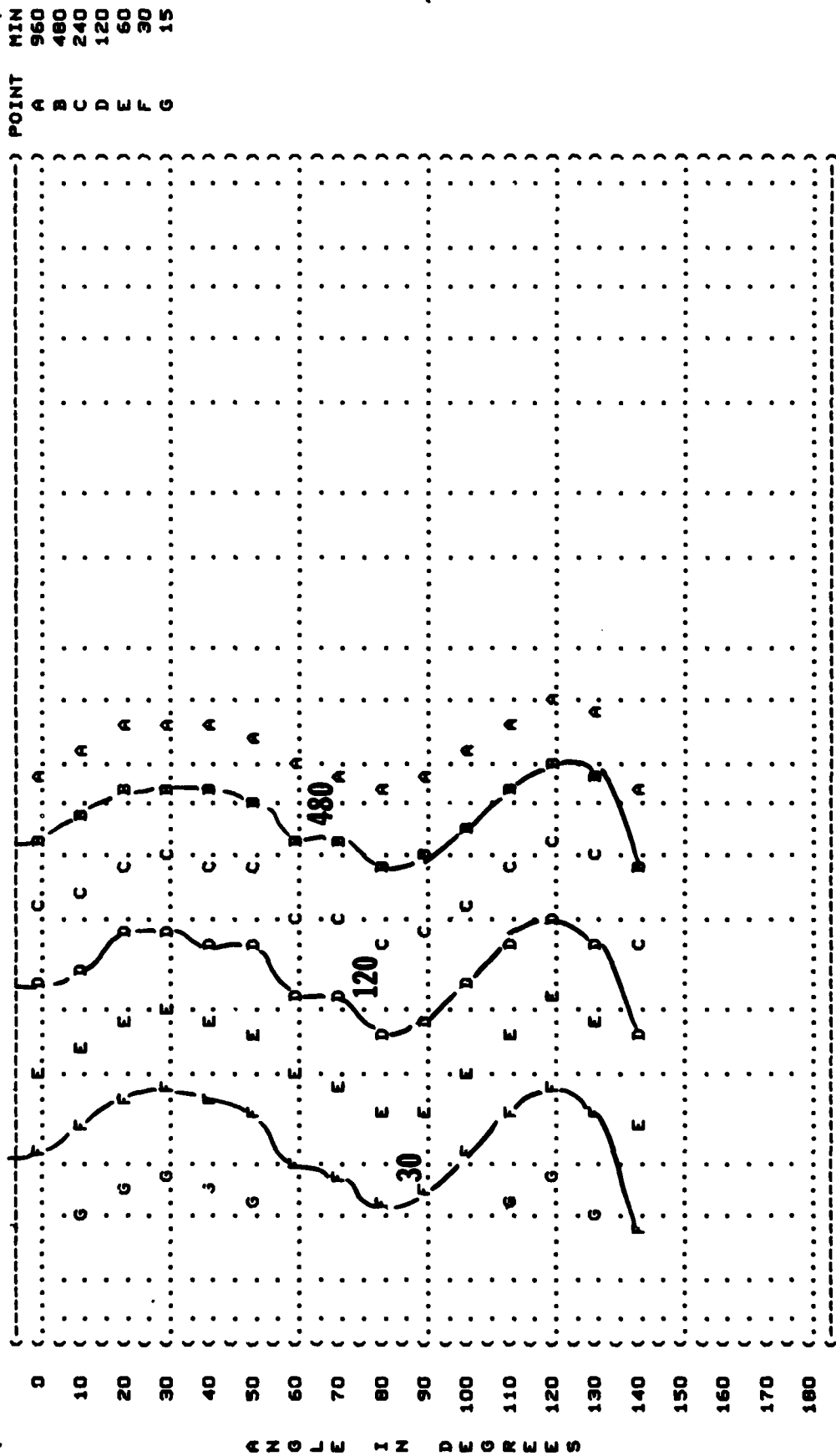




FIGURE: MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)  
 10 EQUAL TIME CONTOURS (MINUTES)  
 AMERICAN OPTICAL 1700 EAR MUFFS

IDENTIFICATION:  
 OMEGA 1.4  
 TEST 95-005-001  
 RUN 04  
 26 JUL 82  
 PAGE 9

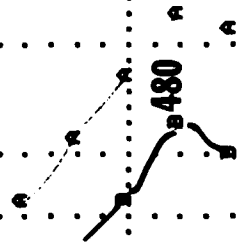
NOISE SOURCE/SUBJECT:  
 KC-10A AIRCRAFT  
 CF6-50C2  
 FAR FIELD NOISE

METEOROLOGY:  
 TEMP = 15 C  
 BAR PRESS = .760 M HG  
 REL HUMID = 70 %

POINT MIN  
 A 960  
 B 480

0  
 10  
 20  
 30  
 40  
 50  
 60  
 70  
 80  
 90  
 100  
 110  
 120  
 130  
 140  
 150  
 160  
 170  
 180

ANGL E I N D E G R E E S



5 6 0 1 1.5 2 3 4 5 6 8 1000  
 DISTANCE FROM SOURCE (METERS)



( ( FIGURE: MAXIMUM PERMISSIBLE TIME [T] FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)  
( ( EQUAL TIME CONTOURS (MINUTES)  
( ( 10  
( ( CONFIT TRIPLE FLANGE EAR PLUGS  
( ( ) IDENTIFICATION:  
( ( )  
( ( ) OMEGA 1.4  
( ( )

NOISE SOURCE/SUBJECT:	OPERATION:	METEOROLOGY:	RUN
		TEMP = 15 C	04
KC-10A AIRCRAFT	95X RPM	BAR PRESS = .760 M HG	26 JUL 62
CF6-50C2	ENGINE NO. 1	REL HUMID = 70 X	
FAR FIELD NOISE	FREE FLOW		PAGE 11

	MIN	POINT
0	960	A
1	480	B

[illegible]

1000  
DISTANCE FROM SOURCE (METERS)

IDENTIFICATION: OMEGA 1.4

H-133 GROUND COMMUNICATION UNIT

### **METEOROLOGY:**

1571 83-00  
RUN 04

TEMP = 15 C  
BAR PRESS = .760 M HG  
REL HUMID = 70 %

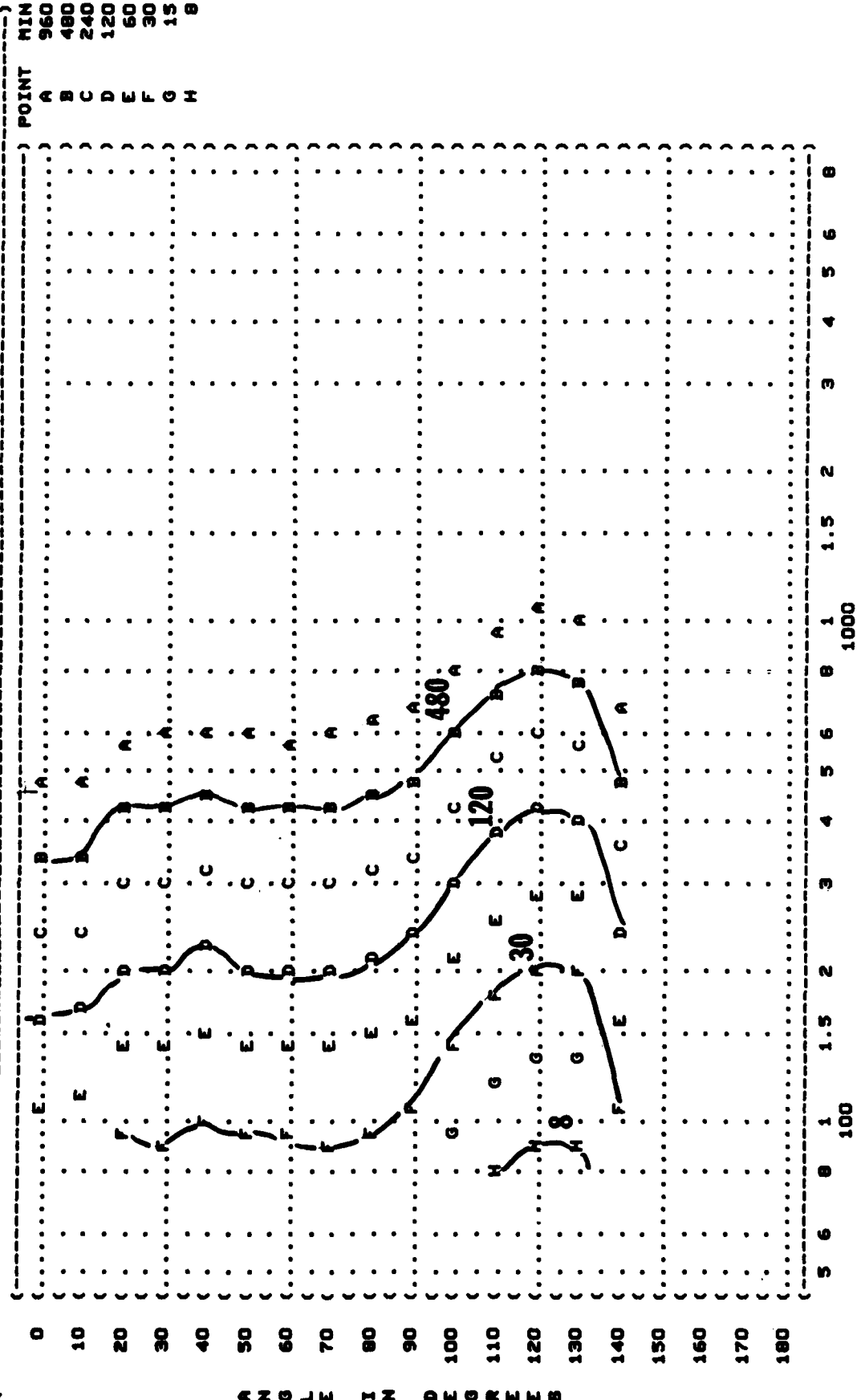
**PAGE 12**

	MIN	POINT
(-----)		
(.....)		

97

DISTANCE FROM SOURCE (METERS)

) FIGURE: MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)  
 ) IDENTIFICATION:  
 )  
 ) 10 EQUAL TIME CONTOURS (MINUTES)  
 ) NO PROTECTION  
 )  
 ) NOISE SOURCE/SUBJECT: ( OPERATION: ) METEOROLOGY:  
 ) KC-10A AIRCRAFT ( MAXIMUM CONTINUOUS POWER ) TEMP = 15 C  
 ) CFS-50C2 ( ENGINE NO. 1 ) BAR PRESS = .760 M HG  
 ) FAR FIELD NOISE ( FREE FLOW ) REL HUMID = 70 X  
 )  
 )  
 )  
 ) OMEGA 1.4  
 ) TEST BS-005-001  
 ) RUN 05  
 ) 26 JUL 82  
 ) PAGE 7



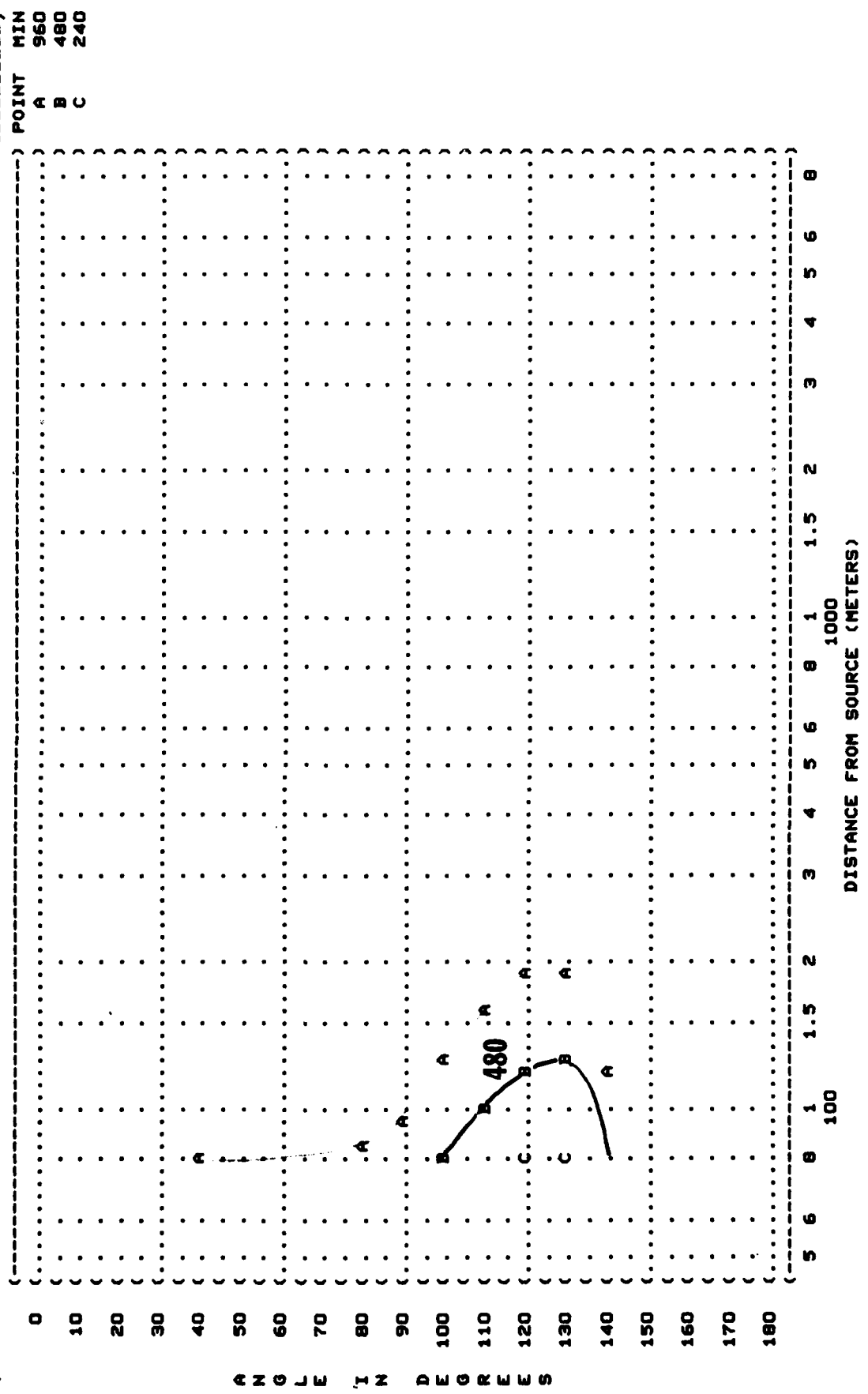








) FIGURE: MAXIMUM PERMISSIBLE TIME [T] FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)  
 ) IDENTIFICATION:  
 )  
 ) 10 EQUAL TIME CONTOURS (MINUTES)  
 ) COMFIT TRIPLE FLANGE EAR PLUGS  
 )  
 ) NOISE SOURCE/SUBJECT: ( OPERATION: ) METEOROLOGY: )  
 ) KC-10A AIRCRAFT ( MAXIMUM CONTINUOUS POWER ) TEMP = 15 C )  
 ) CF6-50C2 ( ENGINE NO. 1 ) BAR PRESS = .760 M HG )  
 ) FAR FIELD NOISE ( FREE FLOW ) REL HUMID = 70 % )  
 ) TEST BS-005-001 )  
 ) RUN 05 )  
 ) 26 JUL 82 )  
 ) PAGE 11 )

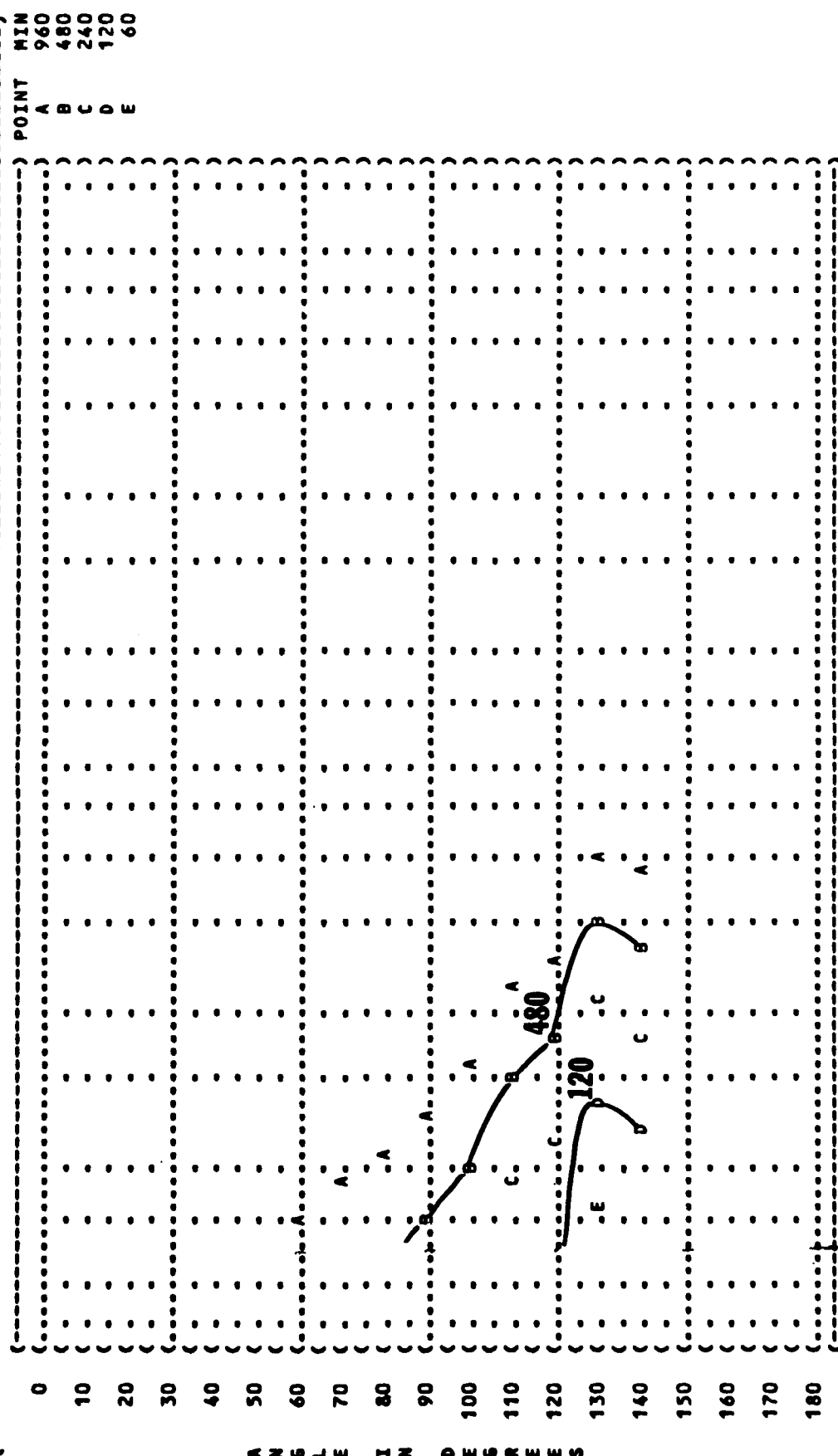








) FIGURE: MAXIMUM PERMISSIBLE TIME [T] FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73) ) IDENTIFICATION:  
 ) 10 EQUAL TIME CONTOURS (MINUTES) )  
 ) AMERICAN OPTICAL 1700 EAR MUFFS ) OMEGA 1.4  
 ) NOISE SOURCE/SUBJECT: ( OPERATION: ) METEOROLOGY: ) TEST BS-005-001  
 ) KC-10A AIRCRAFT ( TAKEOFF RATED THRUST ) TEMP = 15 C ) RUN 06  
 ) CP6-50C2 ( ENGINE NO. 1 ) BAR PRESS = .760 M HG ) 26 JUL 82  
 ) FAR FIELD NOISE ( FREE FLOW ) REL HUMID = 70 % )  
 ) PAGE 9



A N G L E I N D E G R E E S

	MIN	POINT
0	960	A
10	480	B
	240	C





The graph displays the relationship between the number of minutes (MIN) and the number of points (POINT) for three different activities: A, B, and C. The x-axis represents MIN (0 to 180) and the y-axis represents POINT (0 to 960). Activity A is a straight line from (0,0) to (120,960). Activity B is a curve starting at (0,0), peaking at (120,960), and ending at (180,960). Activity C is a curve starting at (0,0), peaking at (120,960), and ending at (180,960).

MIN	POINT A	POINT B	POINT C
0	0	0	0
10	80	100	100
20	160	200	200
30	240	300	300
40	320	400	400
50	400	500	500
60	480	600	600
70	560	700	700
80	640	800	800
90	720	900	900
100	800	1000	1000
110	880	1100	1100
120	960	1200	1200
130		1300	1300
140		1400	1400
150		1500	1500
160		1600	1600
170		1700	1700
180		1800	1800

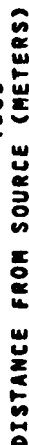


FIGURE: MAXIMUM PERMISSIBLE TIME [T] FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)

EQUAL TIME CONTOURS (MINUTES)

10 NO PROTECTION

NOISE SOURCE/SUBJECT: ( OPERATION: ) METEOROLOGY: ( )

KC-10A AIRCRAFT ( 45X RPM ALL ENGINES ) TEMP = 15 C

CF6-50C2 ( FREE FLOW ) BAR PRESS = .760 M HG

FAR FIELD NOISE ( ) REL HUMID = 70 X

( ) PAGE 7

POINT MIN

A 960

B 480

C 240

D 120

E 60

F 30

ANGLER IN DEGREE

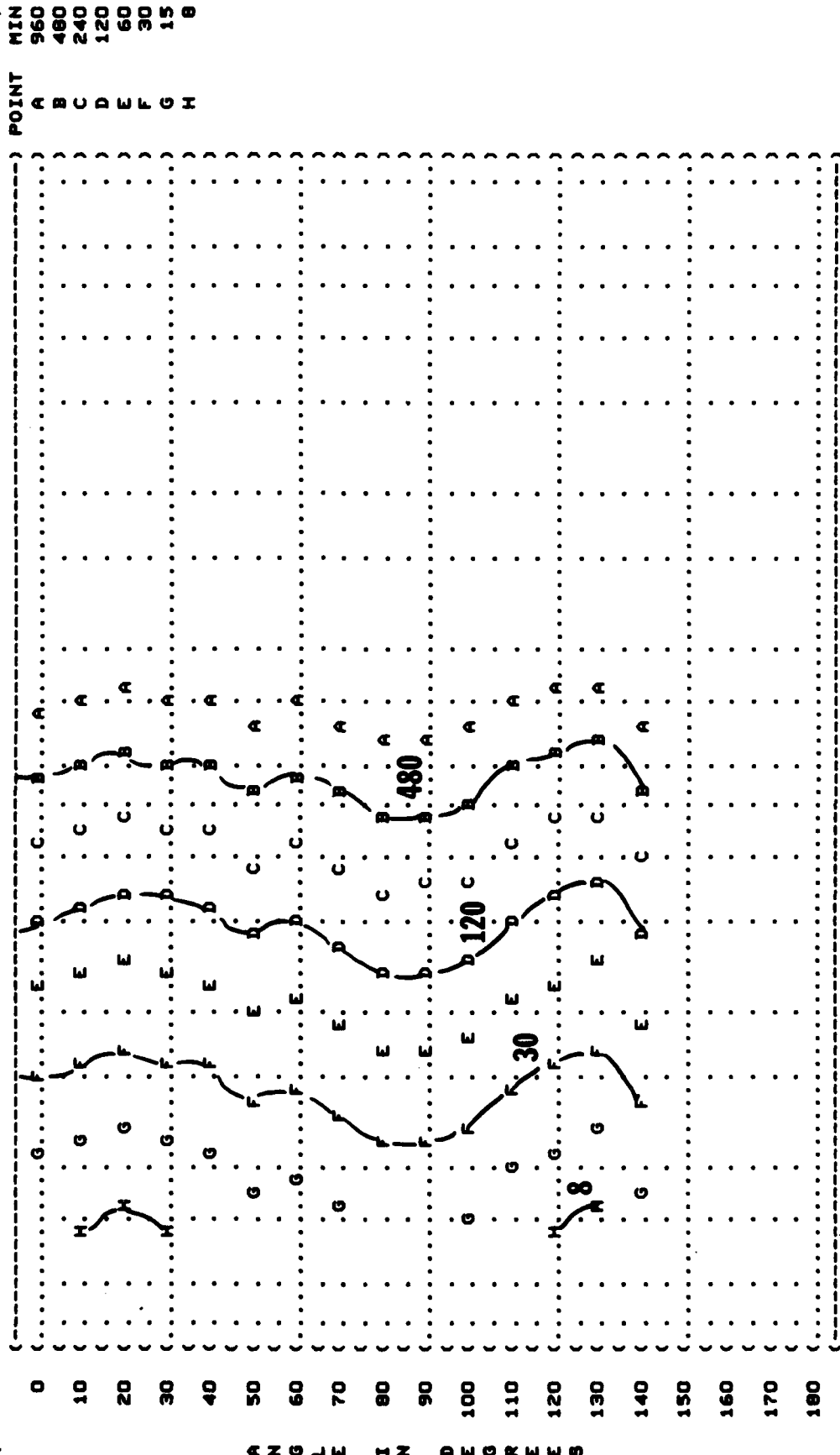
1000

DISTANCE FROM SOURCE (METERS)



FIGURE: MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)  
 10  
 EQUAL TIME CONTOURS (MINUTES)  
 NO PROTECTION

NOISE SOURCE/SUBJECT: KC-10A AIRCRAFT  
 CF6-50C2  
 FAR FIELD NOISE  
 OPERATION: 95% RPM ALL ENGINES  
 FREE FLOW  
 METEOROLOGY: TEMP = 15 C  
 BAR PRESS = .760 M HG  
 REL HUMID = 70 %  
 IDENTIFICATION: OMEGA 1.4  
 TEST BS-005-001  
 RUN 08  
 26 JUL 82  
 PAGE 7



5 6 8 1 1.5 2 3 4 5 6 8  
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 1000  
 DISTANCE FROM SOURCE (METERS)

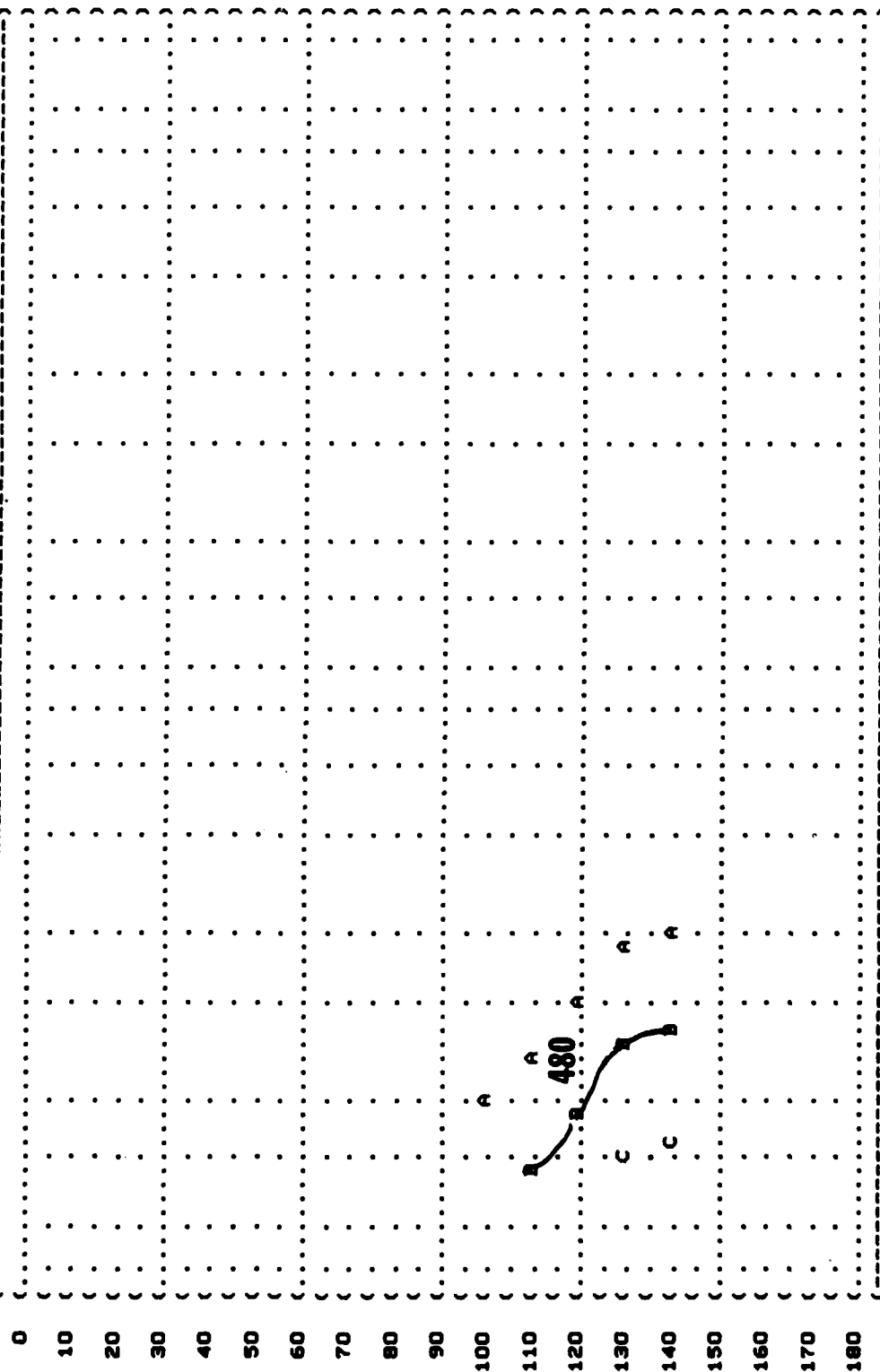


FIGURE: MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)  
 10 EQUAL TIME CONTOURS (MINUTES)  
 AMERICAN OPTICAL 1700 EAR MUFFS

NOISE SOURCE/SUBJECT: ( OPERATION: ) METEOROLOGY: ) OMEGA 1.4  
 KC-10A AIRCRAFT ( 95% RPM ALL ENGINES ) TEMP = 15 C ) TEST BS-005-001  
 CF6-50C2 ( FREE FLOW ) BAR PRESS = .760 M HG ) RUN 08  
 FAR FIELD NOISE ( ) REL HUMID = 70 % ) 26 JUL 82  
 ) PAGE 9

POINT MIN  
 A 960  
 B 480  
 C 240

A N G L E I N D E G R E E S



DISTANCE FROM SOURCE (METERS)





	MIN	POINT
Q	960	A
	480	B





```

( FIGURE: SOUND PRESSURE LEVEL (SPL) ) IDENTIFICATION:
( 11 EQUAL LEVEL CONTOURS (DB) )
( 31.5 HZ OCTAVE BAND )
( NOISE SOURCE/SUBJECT: )
( ( OPERATION: ) METEOROLOGY: )
( ( ) ) )
( KC-10A AIRCRAFT ) ) TEMP = 15 C )
( CF6-50C2 ) ) IDLE POWER 23.7% RPM ) BAR PRESS = .760 M HG )
( FAR FIELD NOISE ) ) ENGINE NO. 1 ) REL HUMID = 70 % )
( ) ) FREE FLOW ) )
( ) )
( NO CONTOUR DATA---EITHER NO INPUT DATA WERE COMPUTED (=9999.0) )
( OR MINIMUM CONTOUR LEVEL REQUESTED IS GREATER THAN MAXIMUM COMPUTED LEVEL. )
( )
( )

```

FIGURE: SOUND PRESSURE LEVEL (SPL)  
EQUAL LEVEL CONTOURS (DB)  
11 63 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:

OPERATION:

METEOROLOGY:

KC-10A AIRCRAFT  
CF6-50C2  
FAR FIELD NOISE

IDLE POWER 23.7% RPM  
ENGINE NO. 1  
FREE FLOW

TEMP = 15 C  
BAR PRESS = .760 M HG  
REL HUMID = 70 %

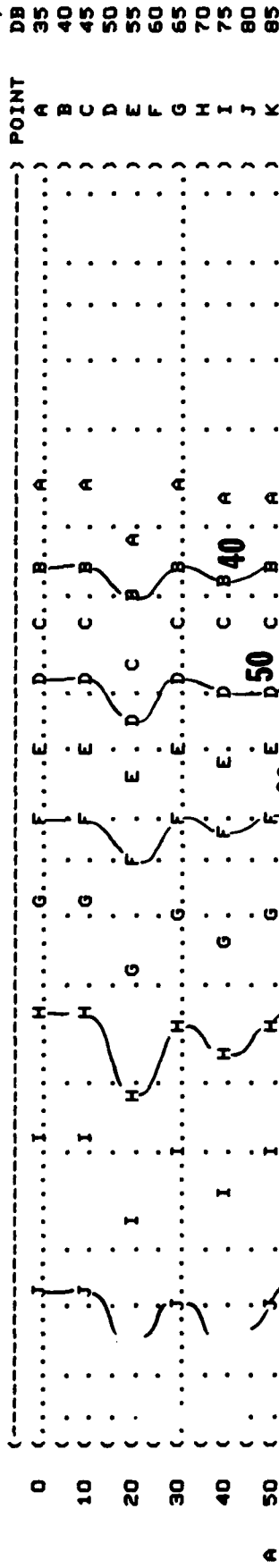
OMEGA 1.4

TEST BS-005-001

RUN 01

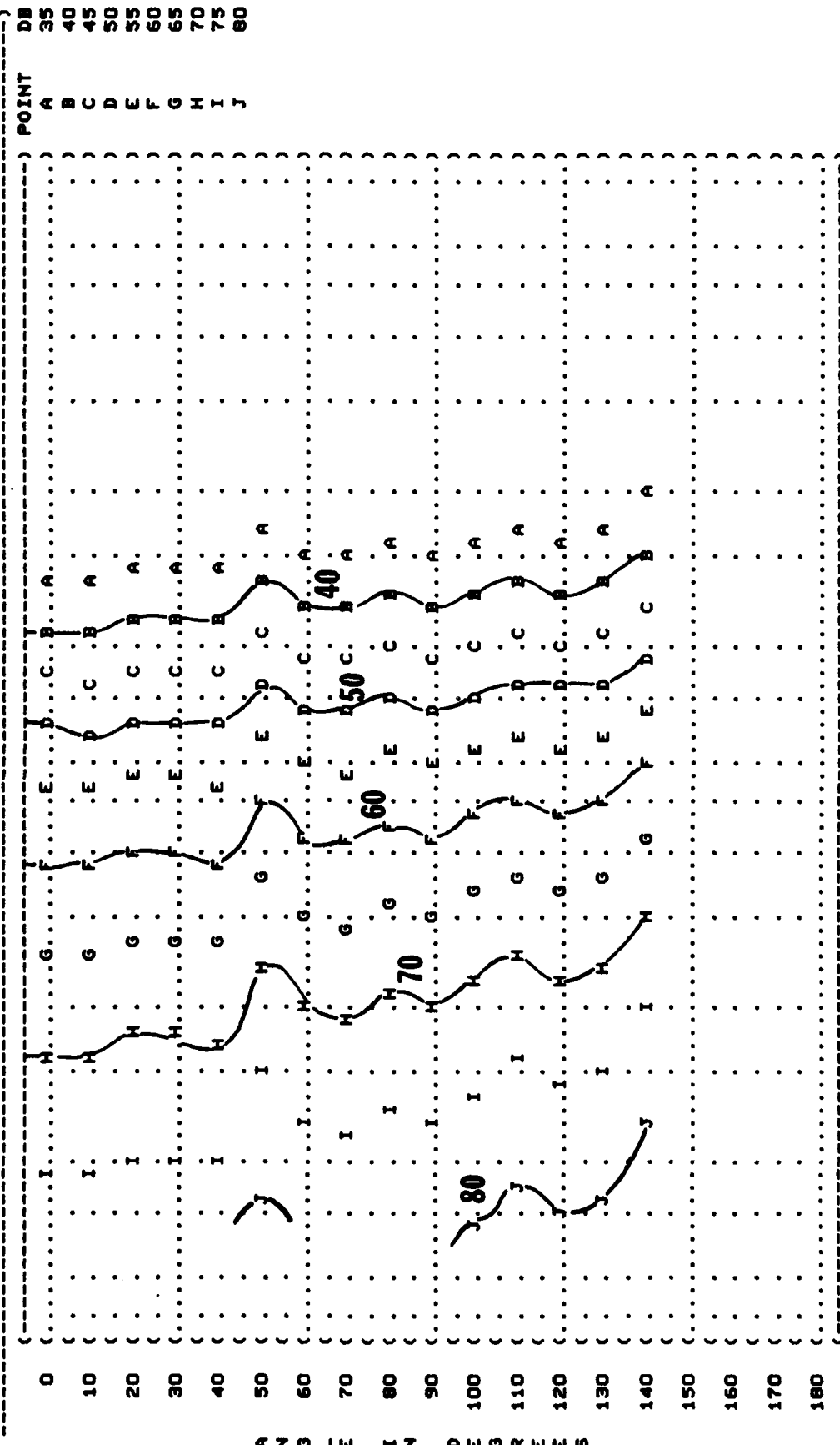
26 JUL 82

PAGE 19



AGL IN DEGR EES

( FIGURE: SOUND PRESSURE LEVEL (SPL)  
 ( EQUAL LEVEL CONTOURS (DB)  
 ( 11 125 HZ OCTAVE BAND  
 ( NOISE SOURCE/SUBJECT: ( OPERATION:  
 ( ( ( METEOROLOGY:  
 ( KC-10A AIRCRAFT ( TEMP = 15 C  
 ( CF6-50C2 ( IDLE POWER 23.7% RPM  
 ( FAR FIELD NOISE ( ENGINE NO. 1 BAR PRESS = .760 M HG  
 ( ( FREE FLOW REL HUMID = 70 %  
 ( ( ( RUN 01  
 ( TEST 85-005-001  
 ( OMEGA 1.4  
 ( IDENTIFICATION:  
 ( PAGE 20  
 ( 26 JUL 82



( FIGURE: SOUND PRESSURE LEVEL [SPL]  
 ( EQUAL LEVEL CONTOURS (DB)  
 ( 11 250 HZ OCTAVE BAND  
 ( NOISE SOURCE/SUBJECT: ( OPERATION:  
 ( KC-10A AIRCRAFT ( IDLE POWER 23.7% RPM  
 ( CF6-50C2 ( ENGINE NO. 1  
 ( FAR FIELD NOISE ( FREE FLOW  
 ( METEOROLOGY:  
 ( TEMP = 15 C  
 ( BAR PRESS = .760 M HG  
 ( REL HUMID = 70 %  
 ( IDENTIFICATION:  
 ( OMEGA 1.4  
 ( TEST BS-005-001  
 ( RUN 01  
 ( 26 JUL 82  
 ( PAGE 21

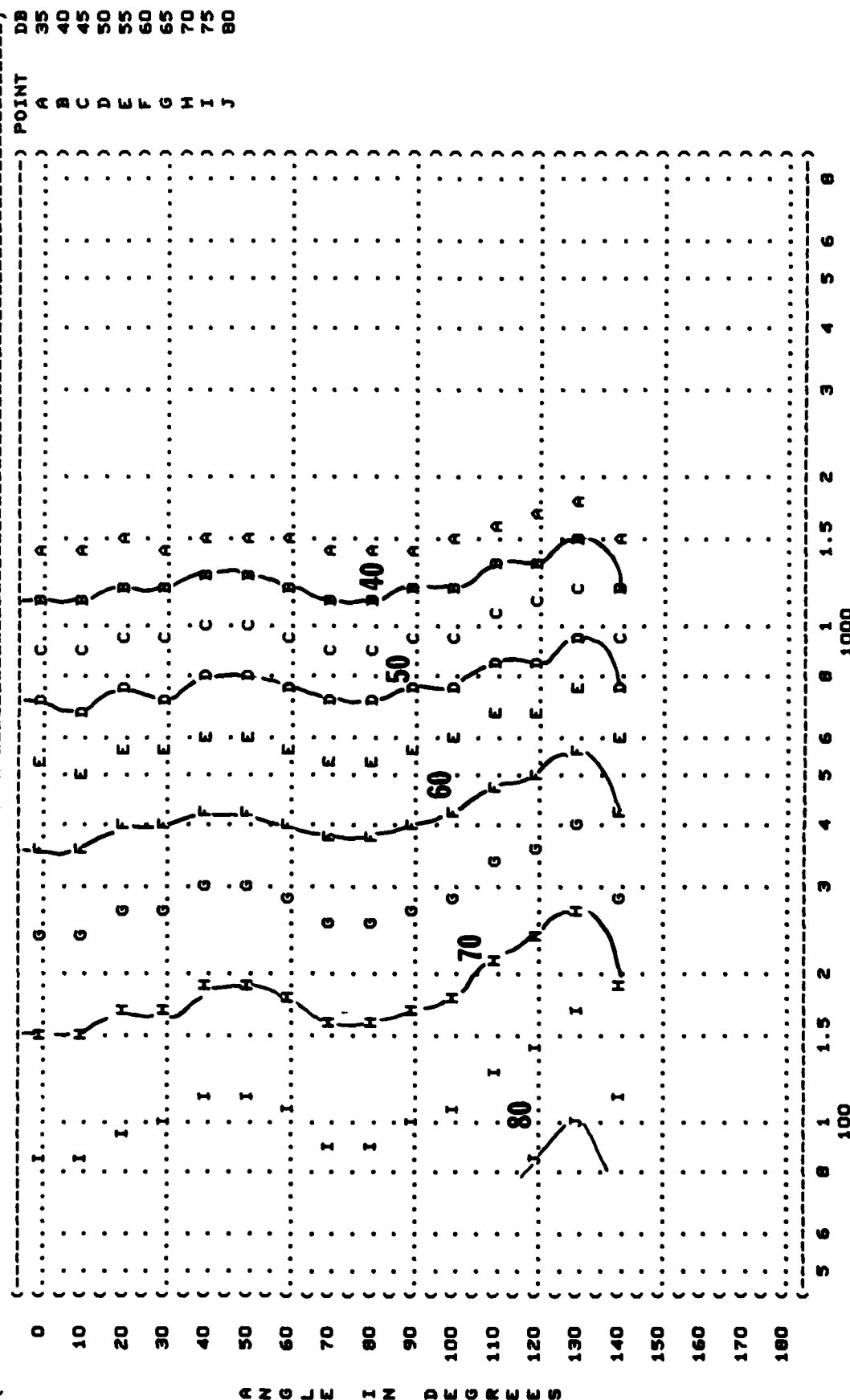


FIGURE: SOUND PRESSURE LEVEL [SPL]  
EQUAL LEVEL CONTOURS (DB)  
500 HZ OCTAVE BAND

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IDENTIFICATION:

OMEGA 1.4

TEST 95-005-001

NOISE SOURCE/SUBJECT:

OPERATION:

METEOROLOGY:

KC-10A AIRCRAFT  
CF6-50C2  
FAR FIELD NOISE

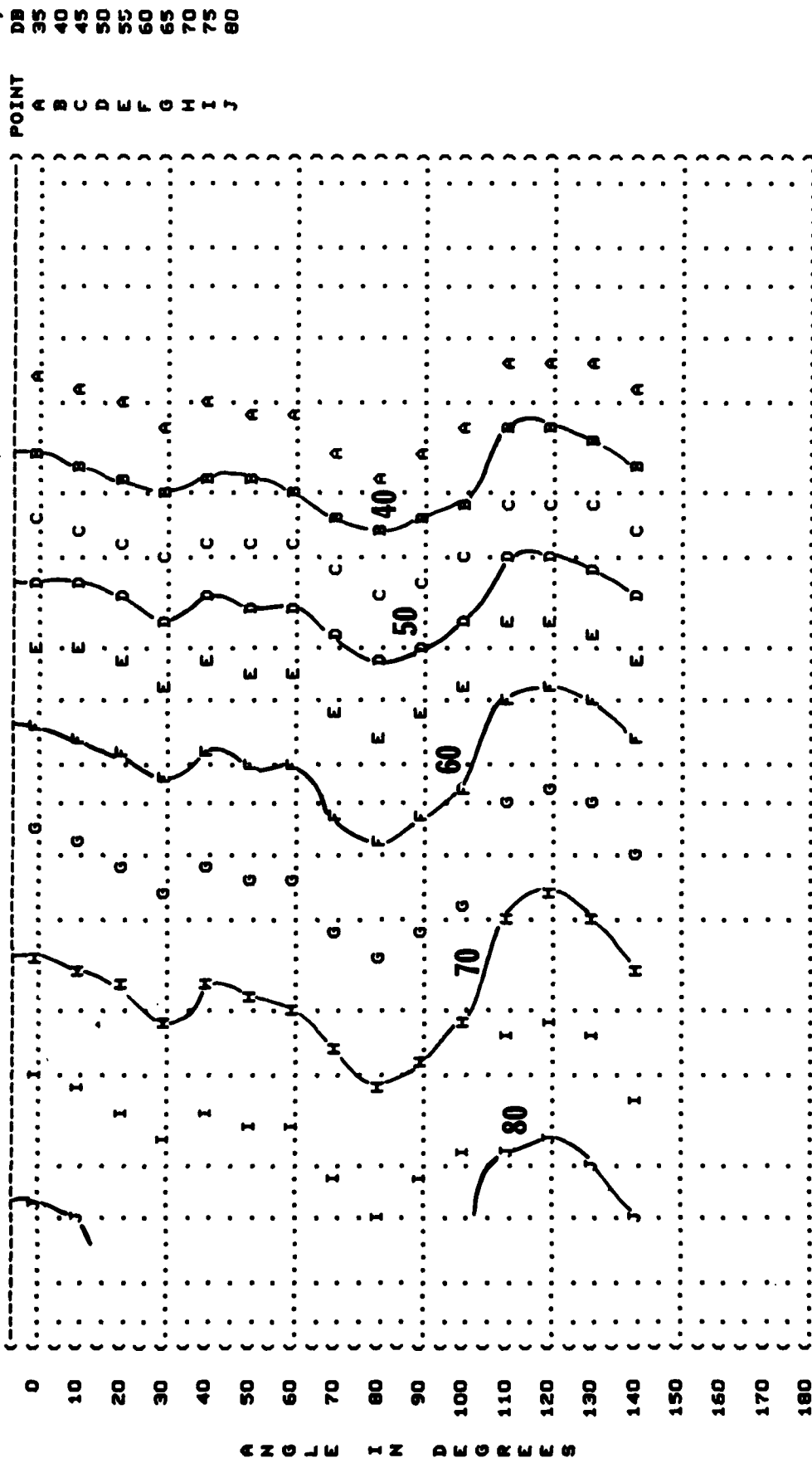
IDLE POWER 23.7X RPM  
ENGINE NO. 1  
FREE FLOW

TEMP = 15 C  
BAR PRESS = .760 M HG  
REL HUMID = 70 %

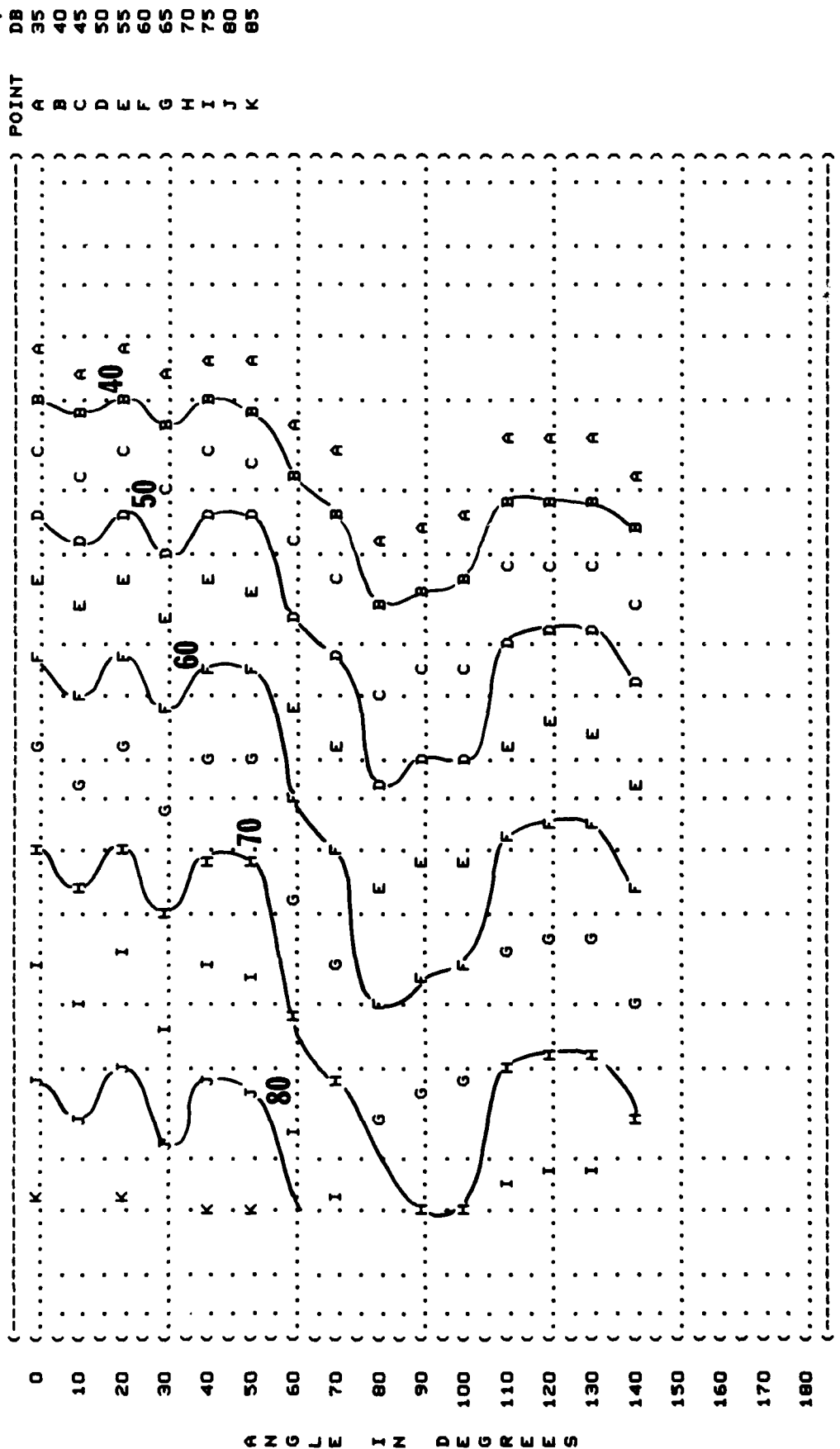
RUN 01

26 JUL 82

PAGE 22



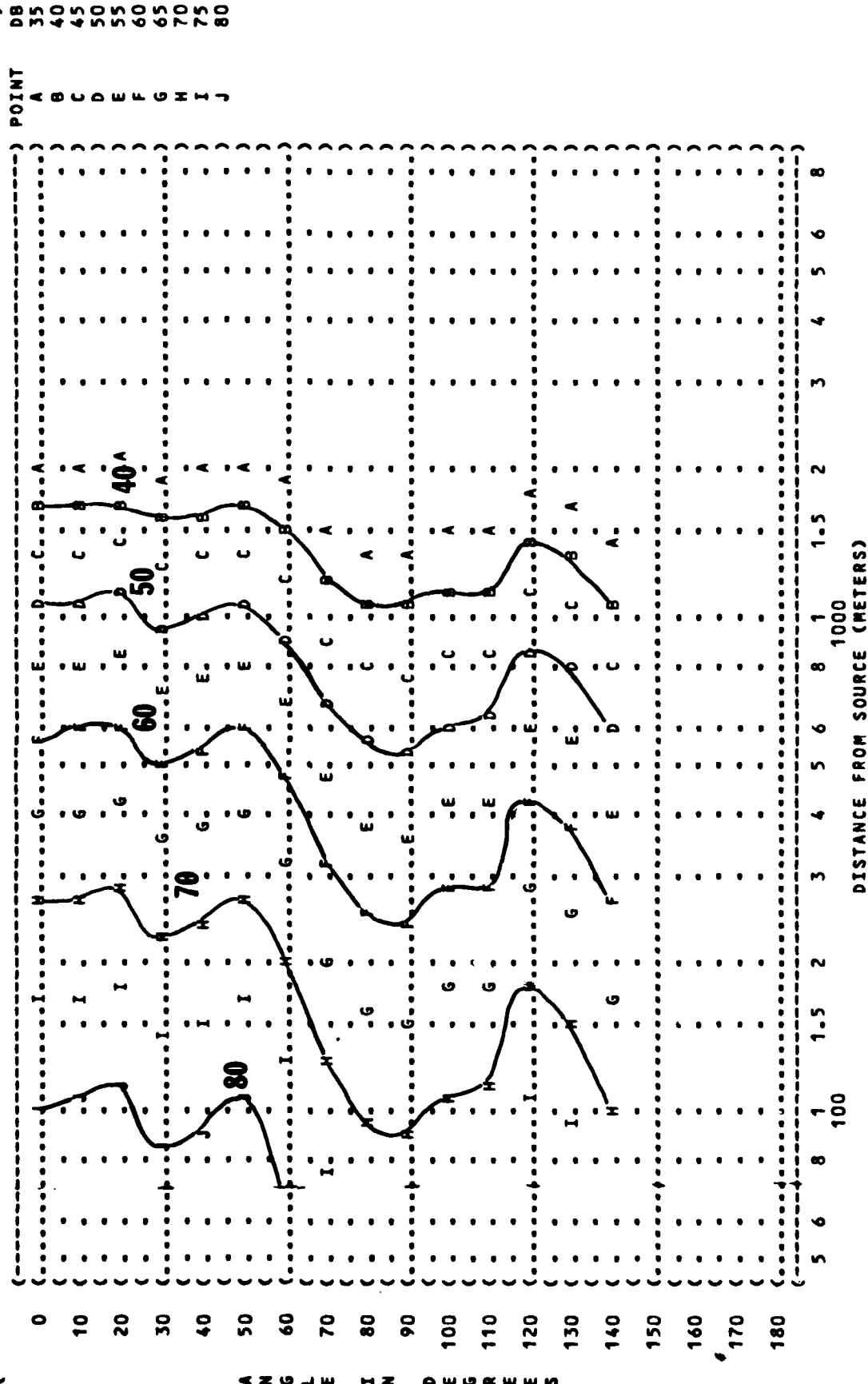
( FIGURE: SOUND PRESSURE LEVEL [SPL]  
 ( EQUAL LEVEL CONTOURS (DB)  
 ( 11 1000 HZ OCTAVE BAND  
 ( NOISE SOURCE/SUBJECT: ( OPERATION:  
 ( KC-10A AIRCRAFT ( IDLE POWER 23.7% RPM  
 ( CF6-50C2 ( ENGINE NO. 1  
 ( FAR FIELD NOISE ( FREE FLOW  
 ( METEOROLOGY:  
 ( TEMP = 15 C  
 ( BAR PRESS = .760 M HG  
 ( REL HUMID = 70 %  
 ( IDENTIFICATION:  
 ( OMEGA 1.4  
 ( TEST BS-003-001  
 ( RUN 01  
 ( 26 JUL 82  
 ( PAGE 23



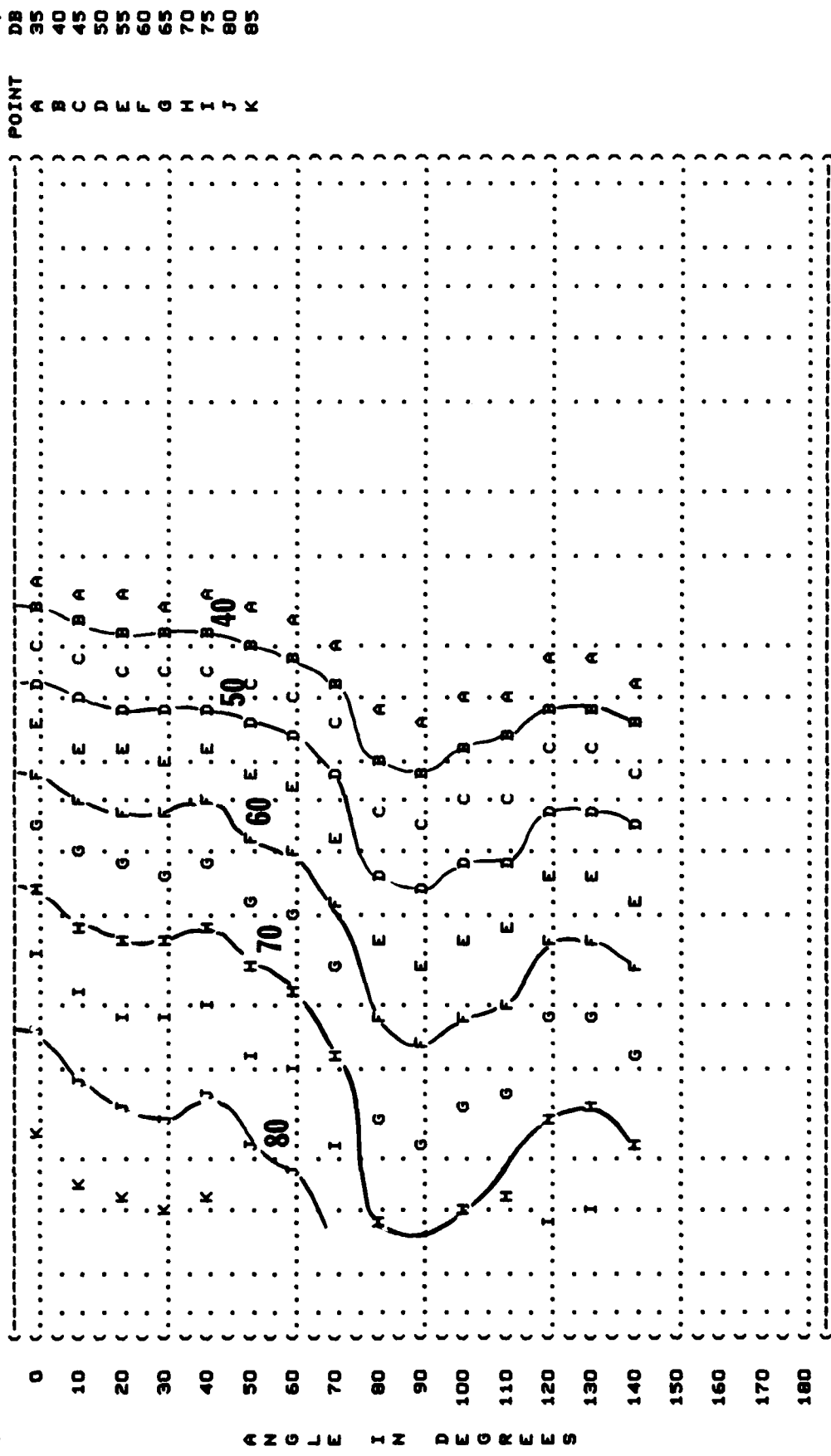
A N G L E I N D E G R E E S



( FIGURE: SOUND PRESSURE LEVEL [SPL]  
 ( EQUAL LEVEL CONTOURS (DB)  
 ( 11 2000 HZ OCTAVE BAND  
 ( ) IDENTIFICATION:  
 ( ) OMEGA 1.4  
 ( ) TEST BS-005-001  
 ( ) RUN 01  
 ( ) METEOROLOGY:  
 ( ) TEMP = 15 C  
 ( ) BAR PRESS = .760 M HG  
 ( ) REL HUMID = 70 %  
 ( ) PAGE 24  
 ( NOISE SOURCE/SUBJECT:  
 ( ) OPERATION:  
 ( ) KC-10A AIRCRAFT  
 ( ) IDLE POWER 23.7% RPM  
 ( ) ENGINE NO. 1  
 ( ) FREE FLOW  
 ( ) FAR FIELD NOISE

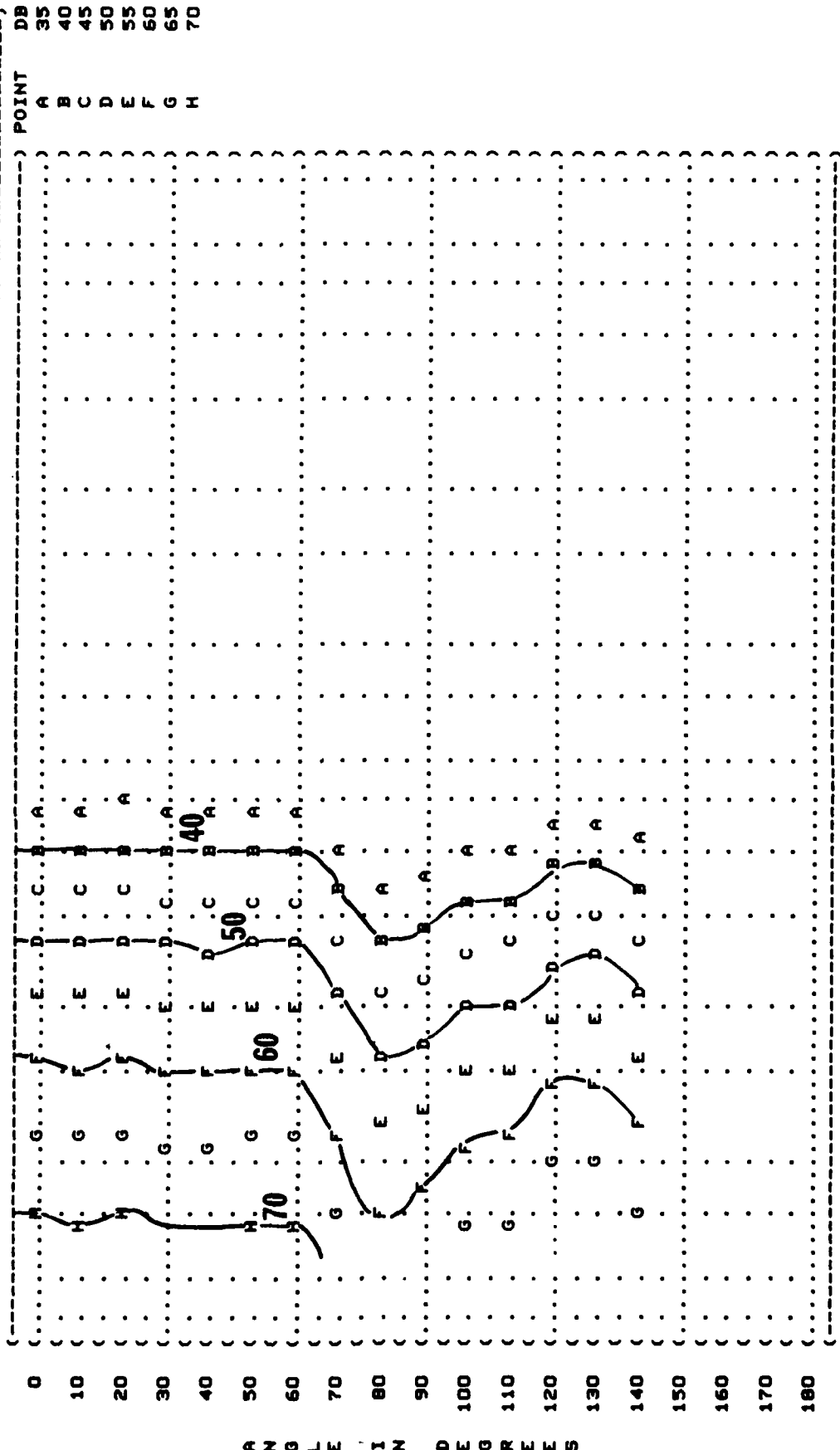


( FIGURE: SOUND PRESSURE LEVEL [SPL] ) IDENTIFICATION: )  
 ( 11 EQUAL LEVEL CONTOURS (DB) )  
 ( 4000 HZ OCTAVE BAND )  
 ( NOISE SOURCE/SUBJECT: ( OPERATION: ) METEOROLOGY: )  
 ( KC-10A AIRCRAFT ( IDLE POWER 23.7X RPM ) TEMP = 15 C )  
 ( CF6-50C2 ( ENGINE NO. 1 ) BAR PRESS = .760 M HG )  
 ( FAR FIELD NOISE ( FREE FLOW ) REL HUMID = 70 % )  
 ( TEST BS-005-001 )  
 ( RUN 01 )  
 ( 26 JUL 82 )  
 ( PAGE 25 )



5 6 8 1 1.5 2 3 4 5 6 8  
 100 1000  
 DISTANCE FROM SOURCE (METERS)

( FIGURE: SOUND PRESSURE LEVEL [SPL]  
 ( EQUAL LEVEL CONTOURS (DB)  
 ( 11 8000 HZ OCTAVE BAND  
 ( NOISE SOURCE/SUBJECT: ( OPERATION:  
 ( KC-10A AIRCRAFT ( IDLE POWER 23.7% RPM  
 ( CF6-30C2 ( ENGINE NO. 1  
 ( FAR FIELD NOISE ( FREE FLOW  
 ( METEOROLOGY:  
 ( TEMP = 15 C  
 ( BAR PRESS = .760 M HG  
 ( REL HUMID = 70 %  
 ( IDENTIFICATION:  
 ( OMEGA 1.4  
 ( TEST BS-005-001  
 ( RUN 01  
 ( 26 JUL 82  
 ( PAGE 26



ANGLIN DEGRS

FIGURE: SOUND PRESSURE LEVEL [SPL]  
EQUAL LEVEL CONTOURS (DB)  
31.5 HZ OCTAVE BAND

11

NOISE SOURCE/SUBJECT:

OPERATION:

METEOROLOGY:

KC-10A AIRCRAFT  
CF6-SOC2  
FAR FIELD NOISE

45X RPM  
ENGINE NO. 1  
FREE FLOW

TEMP = 15 C  
BAR PRESS = .760 M HG  
REL HUMID = 70 X

OMEGA 1.4

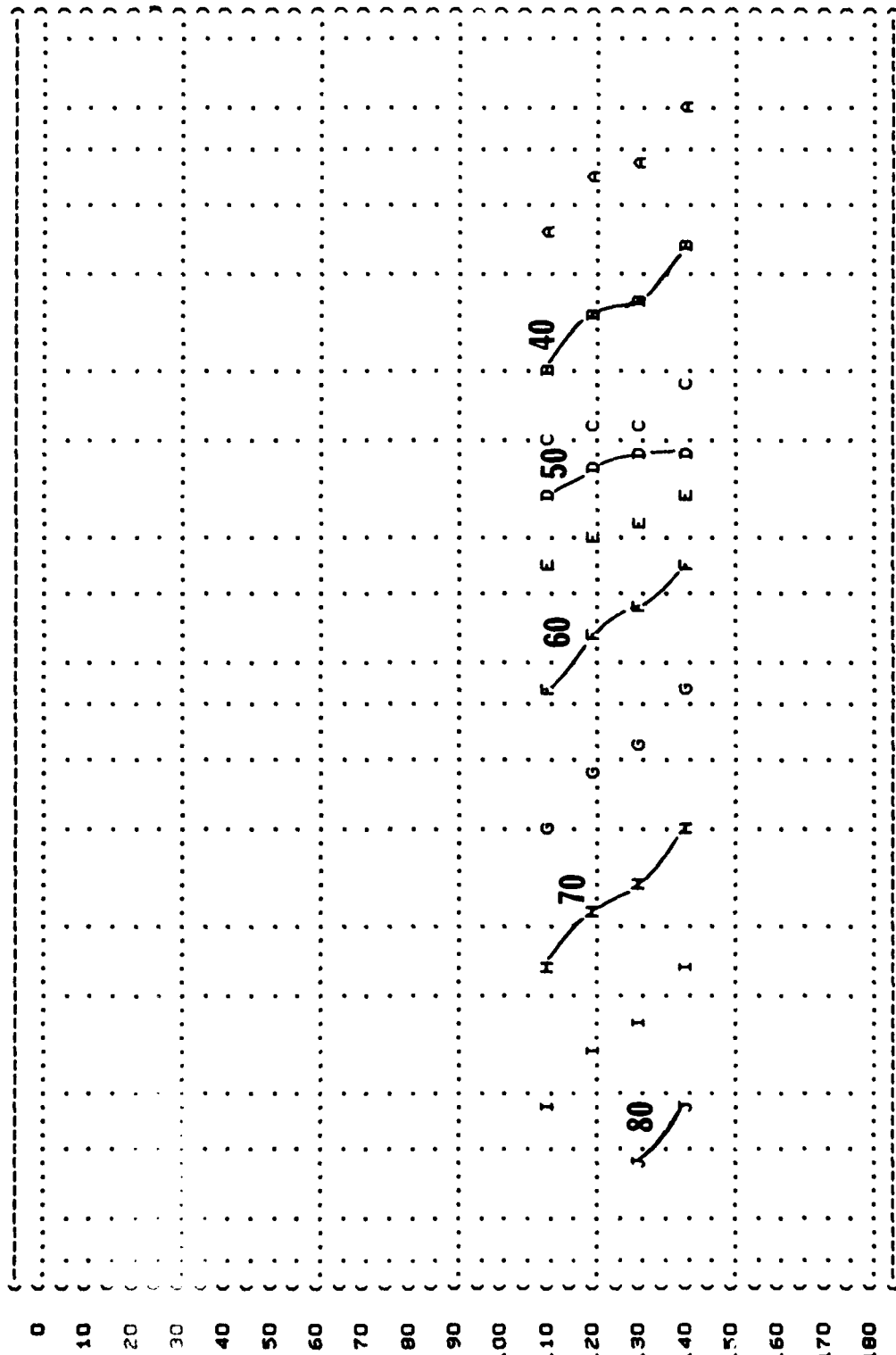
TEST BS-005-001

RUN 02

PAGE 18

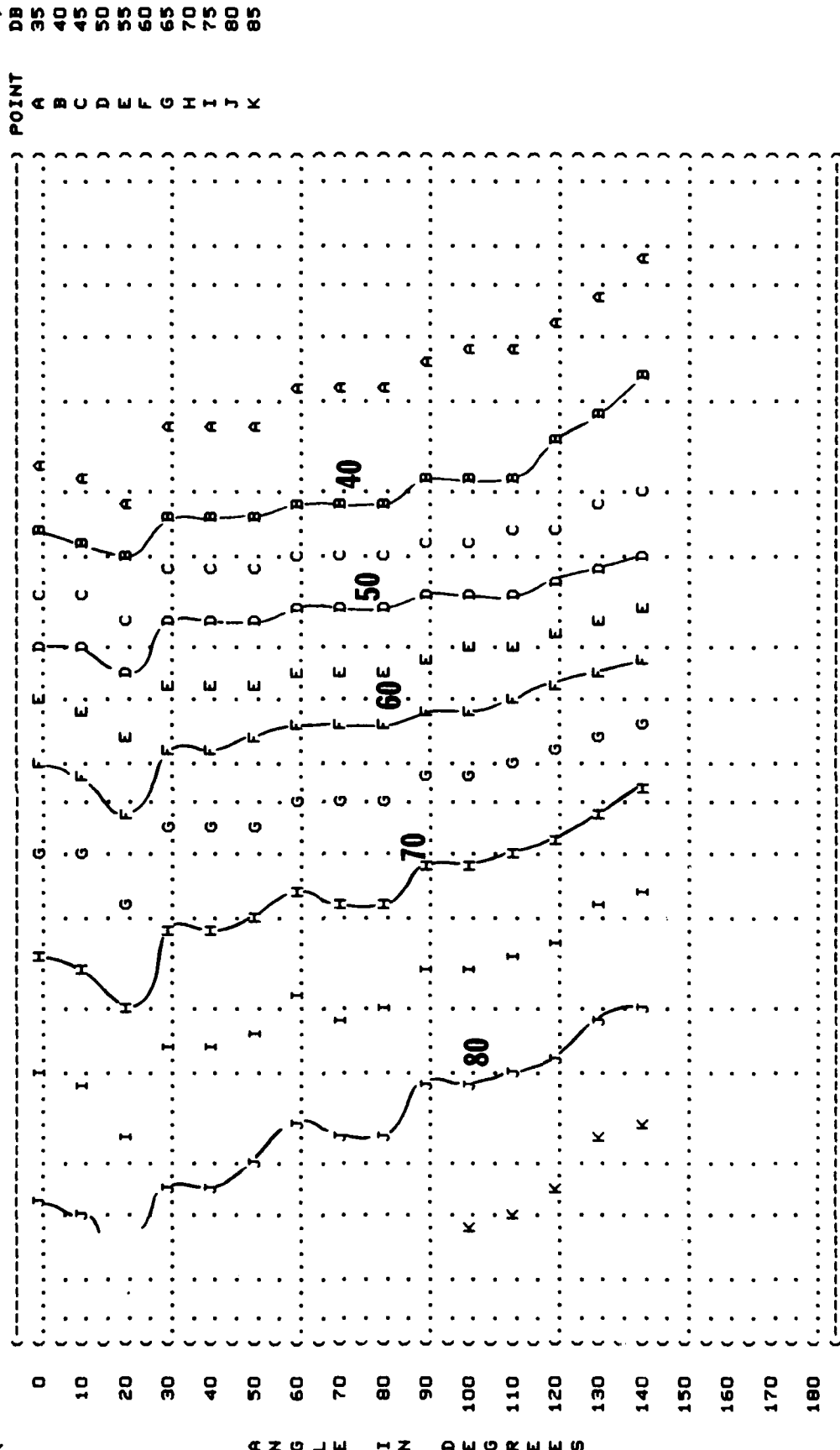
DB	POINT
35	A
40	B
45	C
50	D
55	E
60	F
65	G
70	H
75	I
80	J

A N G L E I N D E G R E E S



DISTANCE FROM SOURCE (METERS)

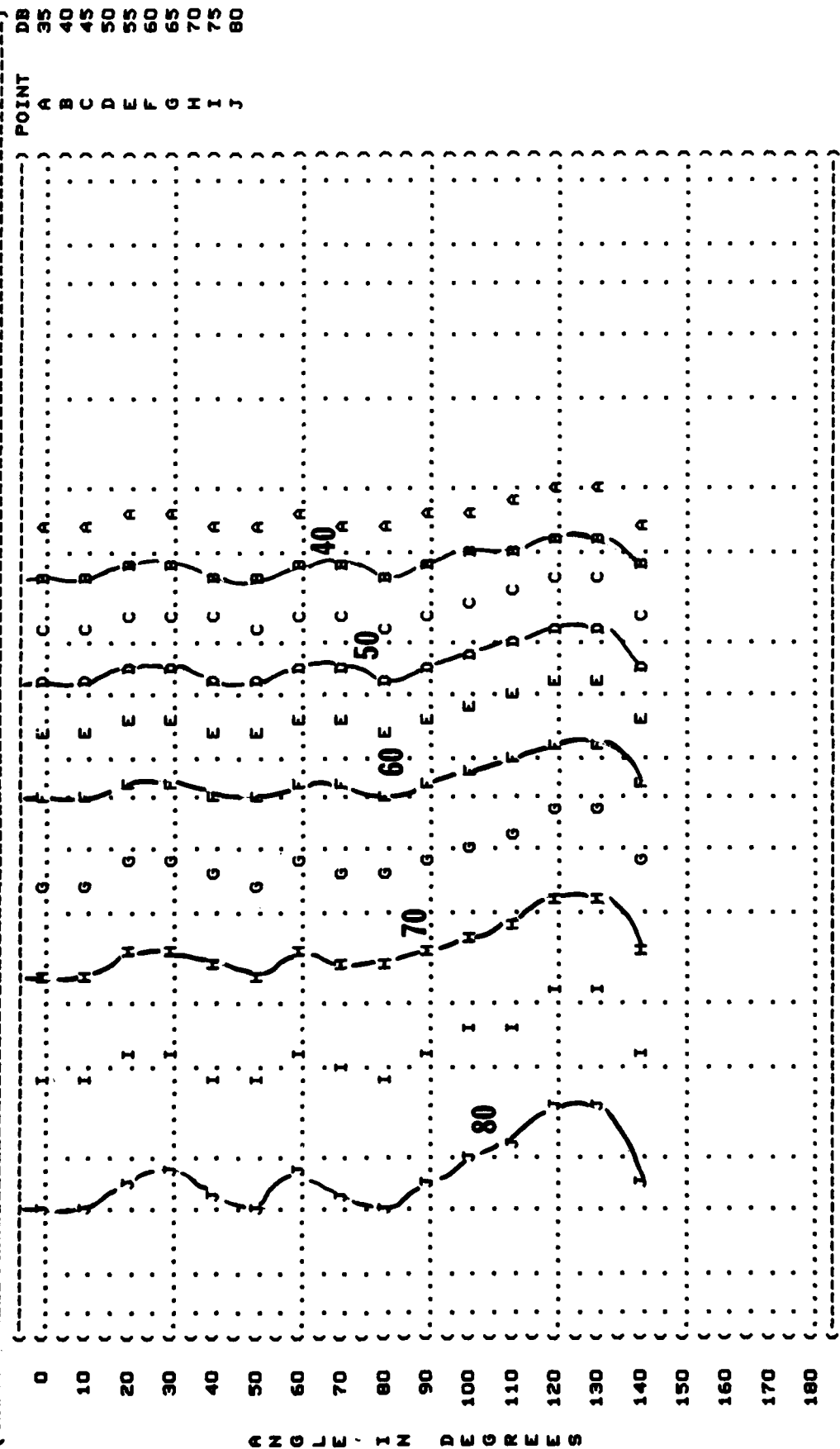
( FIGURE: SOUND PRESSURE LEVEL [SPL]  
 ( EQUAL LEVEL CONTOURS (DB)  
 ( 11 63 HZ OCTAVE BAND  
 ( NOISE SOURCE/SUBJECT: ( OPERATION: ( METEOROLOGY:  
 ( KC-10A AIRCRAFT ( 45X RPM ( TEMP = 15 C  
 ( CFS-SOC2 ( ENGINE NO. 1 ( BAR PRESS = .760 M HG  
 ( FAR FIELD NOISE ( FREE FLOW ( REL HUMID = 70 %  
 ( TEST 95-005-001  
 ( RUN 02  
 ( PAGE 19



A N G  
 L E  
 I N  
 D E  
 G R  
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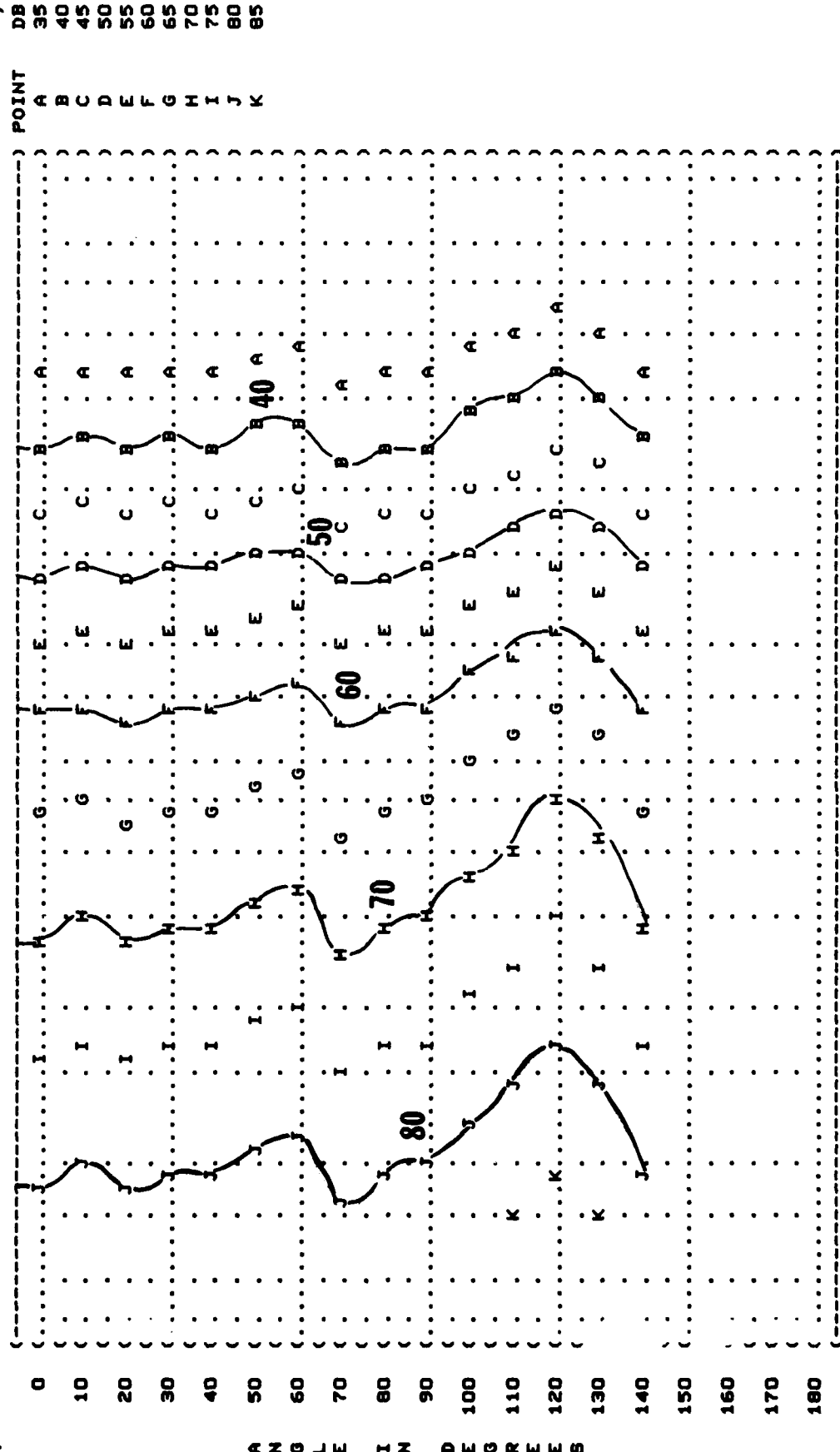


( FIGURE: SOUND PRESSURE LEVEL [SPL]  
 ( EQUAL LEVEL CONTOURS (DB)  
 ( 11 250 HZ OCTAVE BAND  
 ( NOISE SOURCE/SUBJECT: ( OPERATION:  
 ( KC-10A AIRCRAFT ( 45X RPM  
 ( CF6-50C2 ( ENGINE NO. 1  
 ( FAR FIELD NOISE ( FREE FLOW  
 ( METEOROLOGY: ( TEMP = 15 C  
 ( BAR PRESS = .760 M HG  
 ( REL HUMID = 70 X  
 ( IDENTIFICATION:  
 ( OMEGA 1.4  
 ( TEST BS-005-001  
 ( RUN 02  
 ( 26 JUL 82  
 ( PAGE 21



A N G L E I N D E G R E E S

( FIGURE: SOUND PRESSURE LEVEL (SPL)  
 ( EQUAL LEVEL CONTOURS (DB)  
 ( 11 500 HZ OCTAVE BAND  
 ( NOISE SOURCE/SUBJECT: ( OPERATION:  
 ( KC-10A AIRCRAFT ( 45X RPM  
 ( CF6-50C2 ( ENGINE NO. 1  
 ( FAR FIELD NOISE ( FREE FLOW  
 ( METEOROLOGY:  
 ( TEMP = 15 C  
 ( BAR PRESS = .760 M HG  
 ( REL HUMID = 70 X  
 ( IDENTIFICATION:  
 ( OMEGA 1.4  
 ( TEST BS-005-001  
 ( RUN 02  
 ( PAGE 22



DISTANCE FROM SOURCE (METERS)



( FIGURE: SOUND PRESSURE LEVEL [SPL]  
 ( EQUAL LEVEL CONTOURS (DB)  
 ( 11 1000 HZ OCTAVE BAND  
 ( NOISE SOURCE/SUBJECT: ( OPERATION:  
 ( KC-10A AIRCRAFT ( 45X RPM  
 ( CF6-SOC2 ( ENGINE NO. 1  
 ( FAR FIELD NOISE ( FREE FLOW  
 ( METEOROLOGY:  
 ( TEMP = 15 C  
 ( BAR PRESS = .760 M HG  
 ( REL HUMID = 70 X  
 ( IDENTIFICATION:  
 ( OMEGA 1.4  
 ( TEST BS-005-001  
 ( RUN 02  
 ( PAGE 23

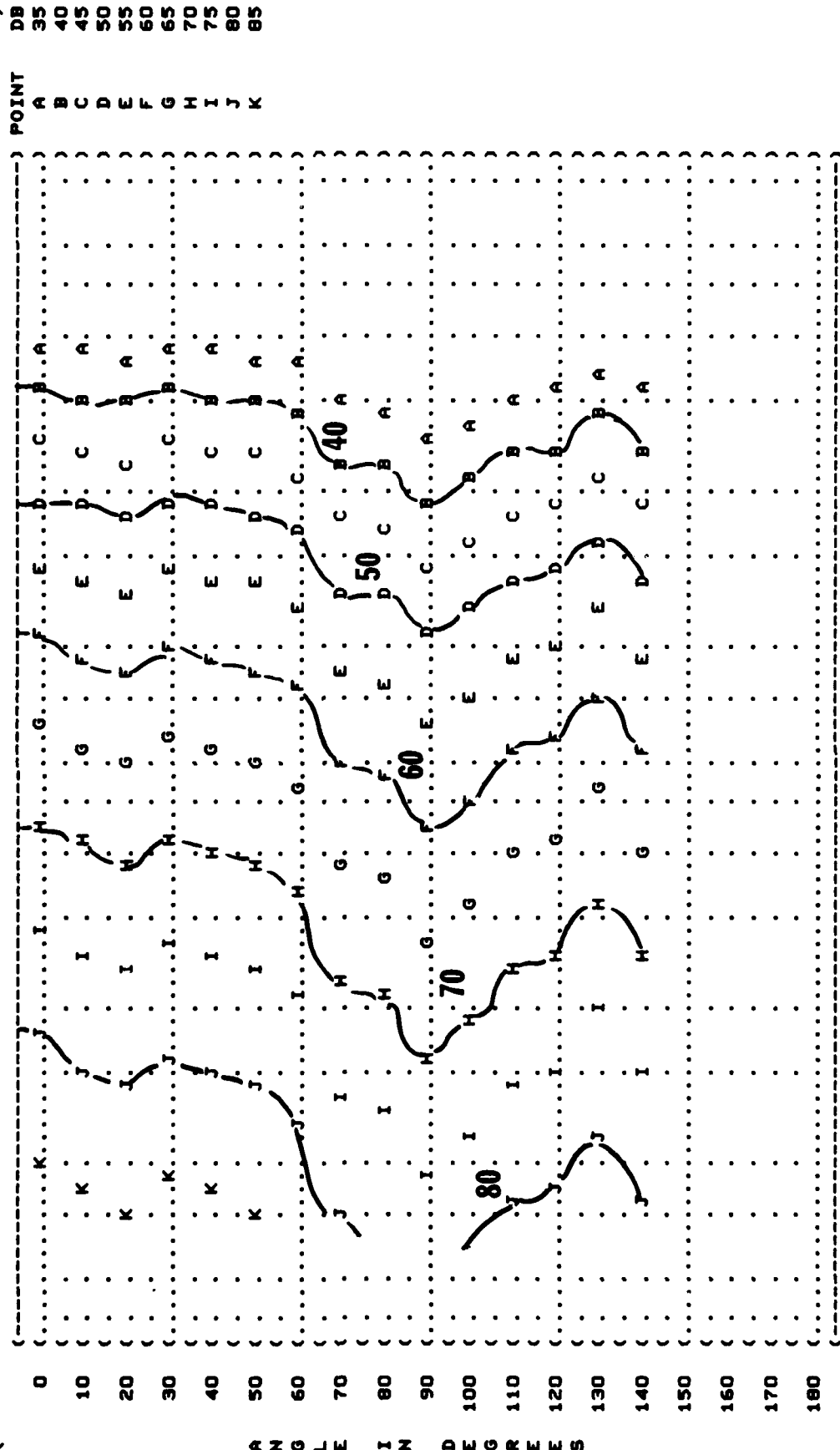


FIGURE: SOUND PRESSURE LEVEL [SPL]  
EQUAL LEVEL CONTOURS (DB)  
11 2000 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:

OPERATION:

METEOROLOGY:

KC-10A AIRCRAFT  
CF6-SOC2  
FAR FIELD NOISE

45X RPM  
ENGINE NO. 1  
FREE FLOW

TEMP = 15 C  
BAR PRESS = .760 M HG  
REL HUMID = 70 %

OMEGA 1.4

TEST BS-005-001  
RUN 02

PAGE 24

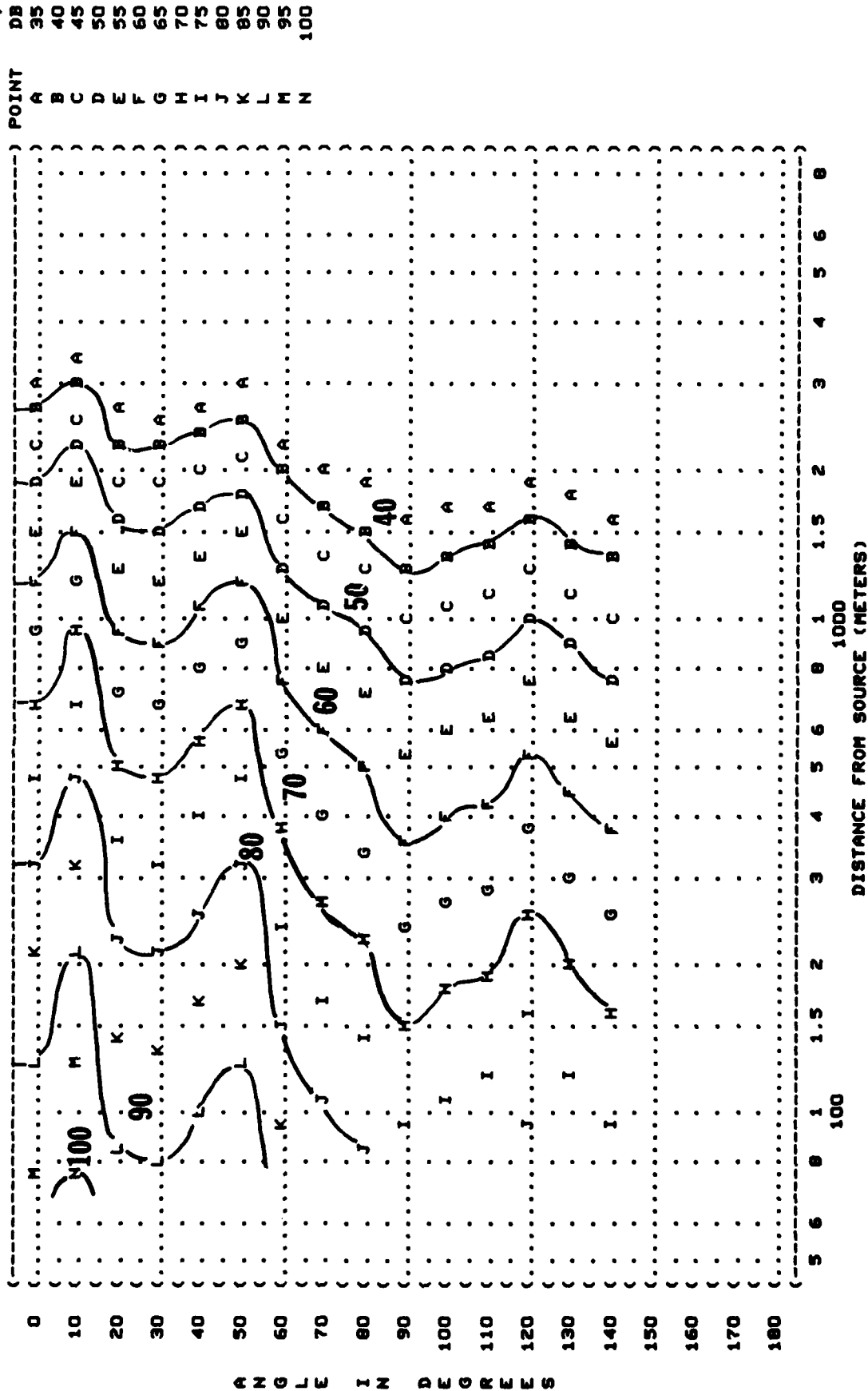


FIGURE: SOUND PRESSURE LEVEL [SPL]  
EQUAL LEVEL CONTOURS (DB)  
4000 HZ OCTAVE BAND

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NOISE SOURCE/SUBJECT:

OPERATION:  
KC-10A AIRCRAFT  
CF6-SOC2  
FAR FIELD NOISE  
45X RPM  
ENGINE NO. 1  
FREE FLOW

METEOLOGY:

TEMP = 15 C  
BAR PRESS = .760 M HG  
REL HUMID = 70 X

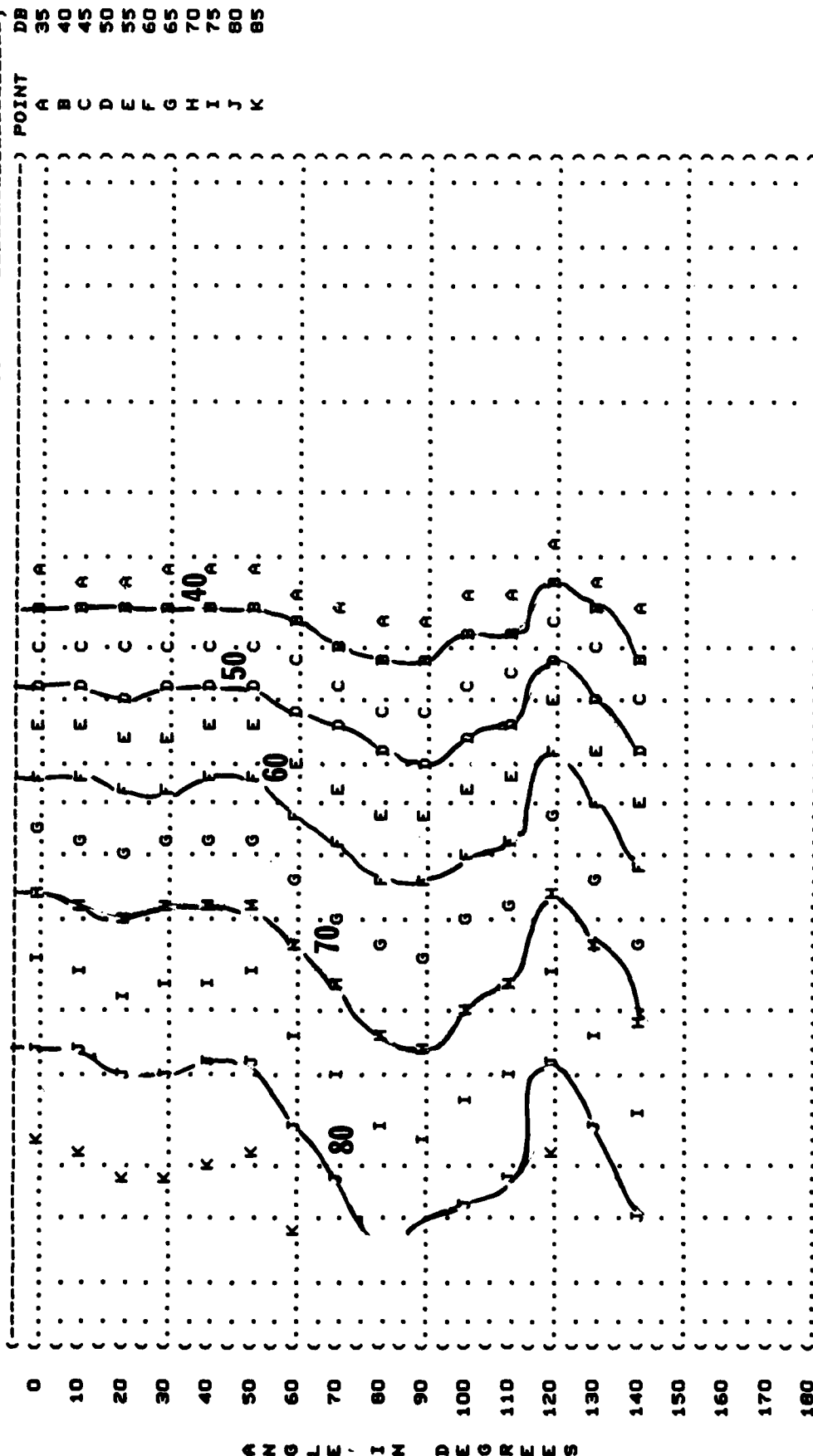
OMEGA 1.4

TEST BS-005-001

RUN 02

26 JUL 82

PAGE 25



DISTANCE FROM SOURCE (METERS)

**FIGURE: SOUND PRESSURE LEVEL [SPL]  
EQUAL LEVEL CONTOURS (DB)  
8000 HZ OCTAVE BAND**

NOISE SOURCE/SUBJECT:	OPERATION:
KC-10A AIRCRAFT	45X RPM
CF6-50C2	ENGINE NOISE
FAR FIELD NOISE	FREE FLOW

00 METEOROLOGY: :  
00 TEMP :  
00 BAR PRESS :  
00 REL HUMID :

OMEGA 1.4  
TEST BS-005  
RUN 02

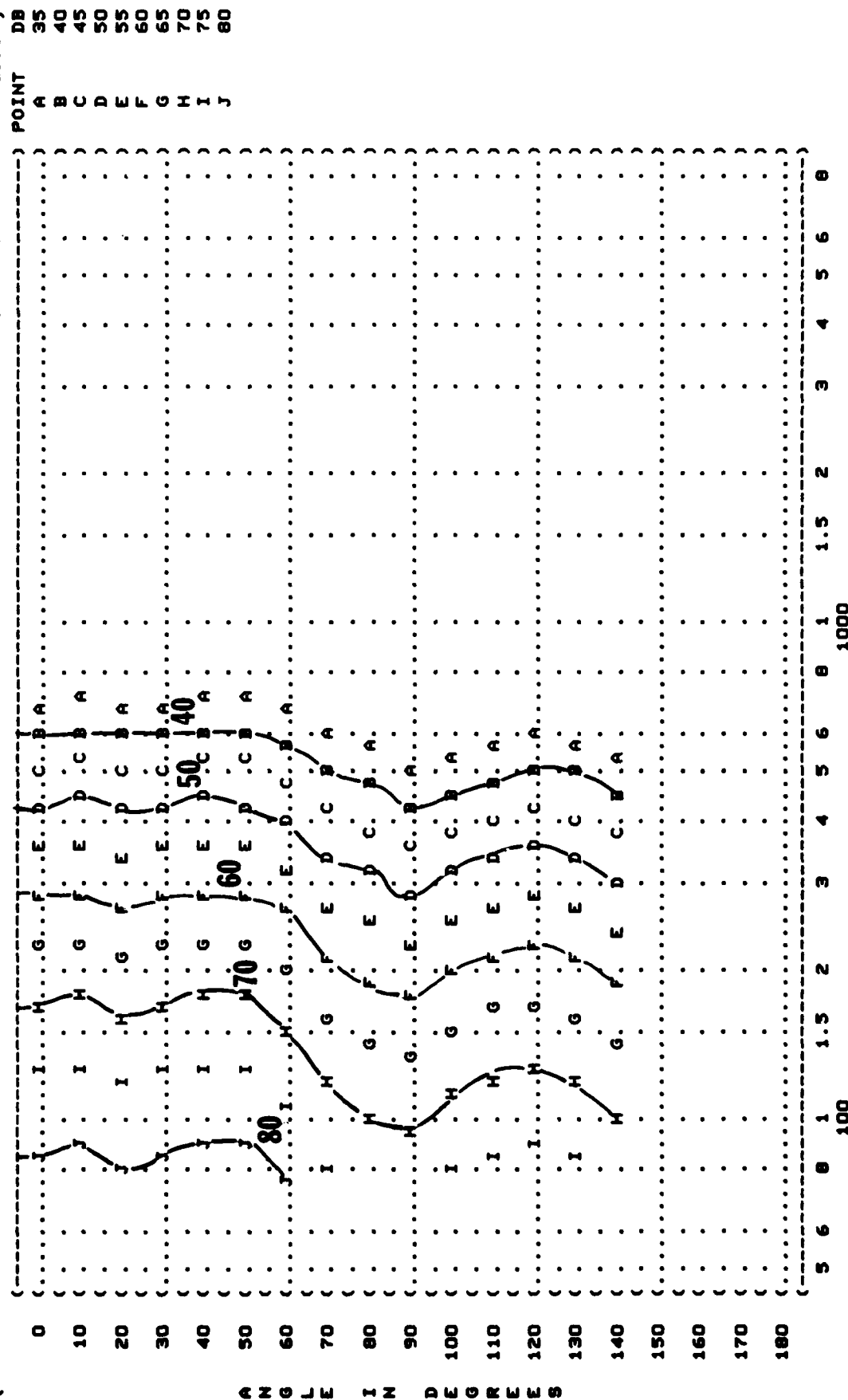


FIGURE: SOUND PRESSURE LEVEL [SPL]  
EQUAL LEVEL CONTOURS (DB)  
11 31.5 HZ OCTAVE BAND

IDENTIFICATION:  
OMEGA 1.4  
TEST BS-005-001  
RUN 03

NOISE SOURCE/SUBJECT:  
KC-10A AIRCRAFT  
CF6-SOC2  
FAR FIELD NOISE

METEOROLOGY:  
TEMP = 15 C  
BAR PRESS = .760 M HG  
REL HUMID = 70 %

OPERATION:  
70% RPM  
ENGINE NO. 1  
FREE FLOW

26 JUL 82  
PAGE 18

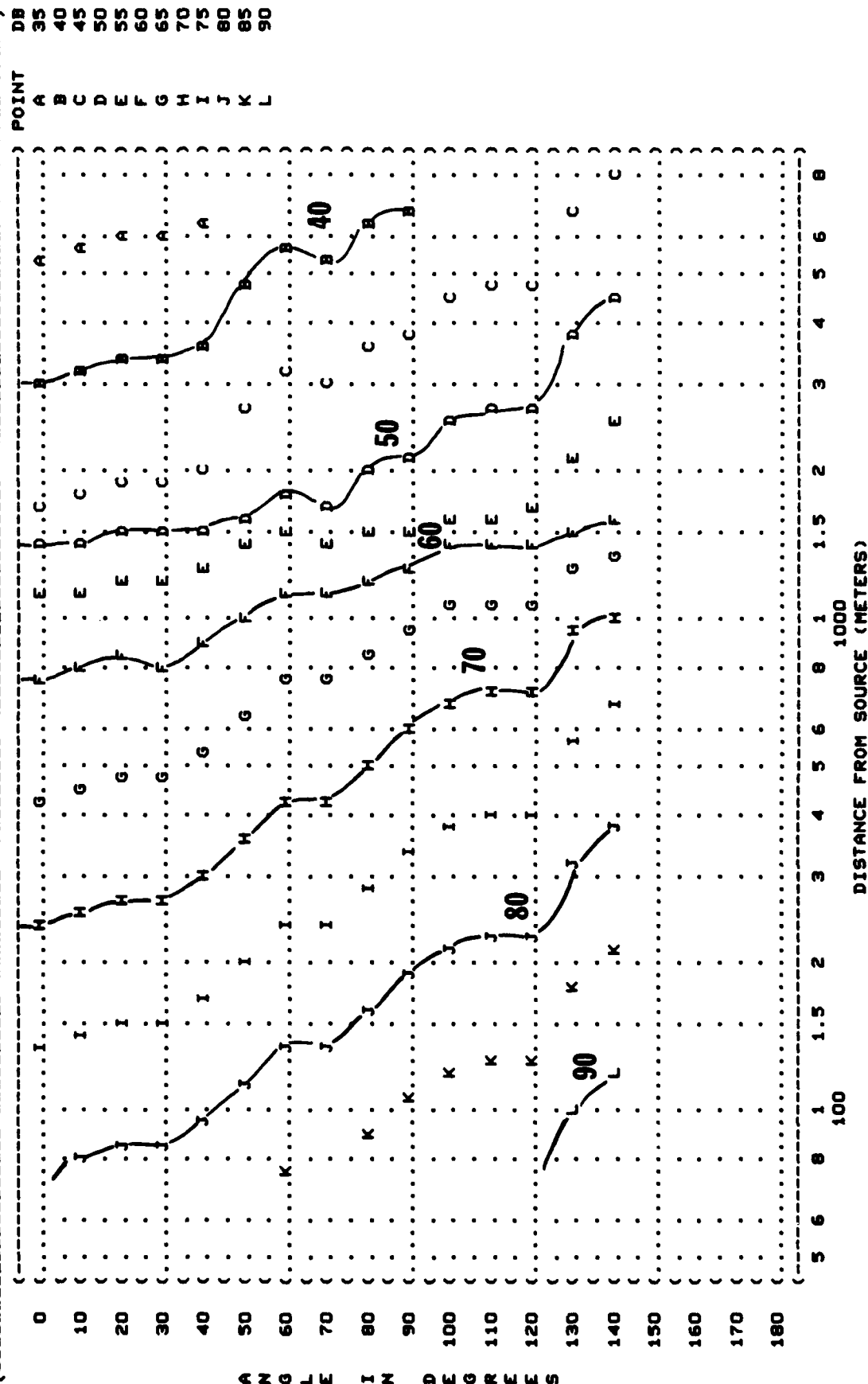


FIGURE: SOUND PRESSURE LEVEL [SPL]  
 11 EQUAL LEVEL CONTOURS (DB)  
 63 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:

OPERATION:

METEOROLOGY:

KC-10A AIRCRAFT  
 CF6-50C2  
 FAR FIELD NOISE

70X RPM  
 ENGINE NO. 1  
 FREE FLOW

TEMP = 15 C  
 BAR PRESS = .760 M HG  
 REL HUMID = 70 X

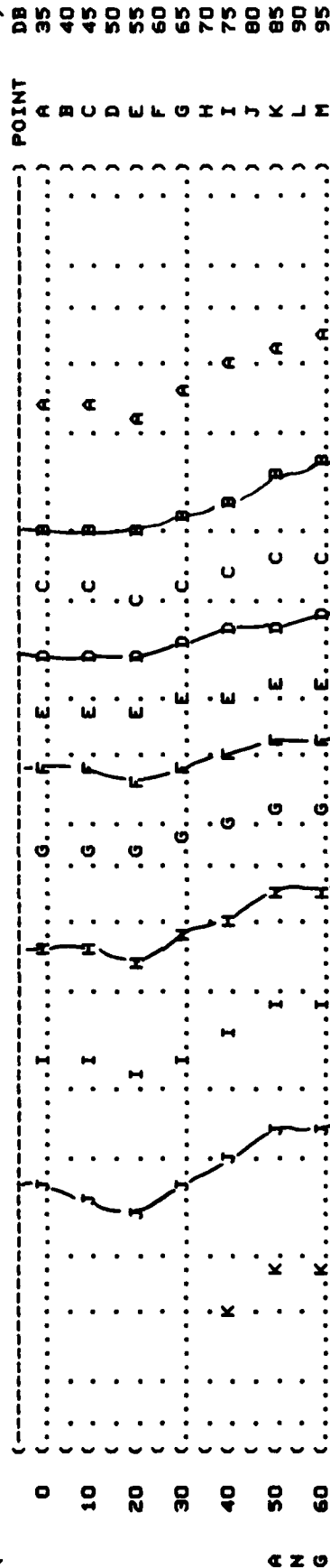
OMEGA 1.4

TEST BS-005-001

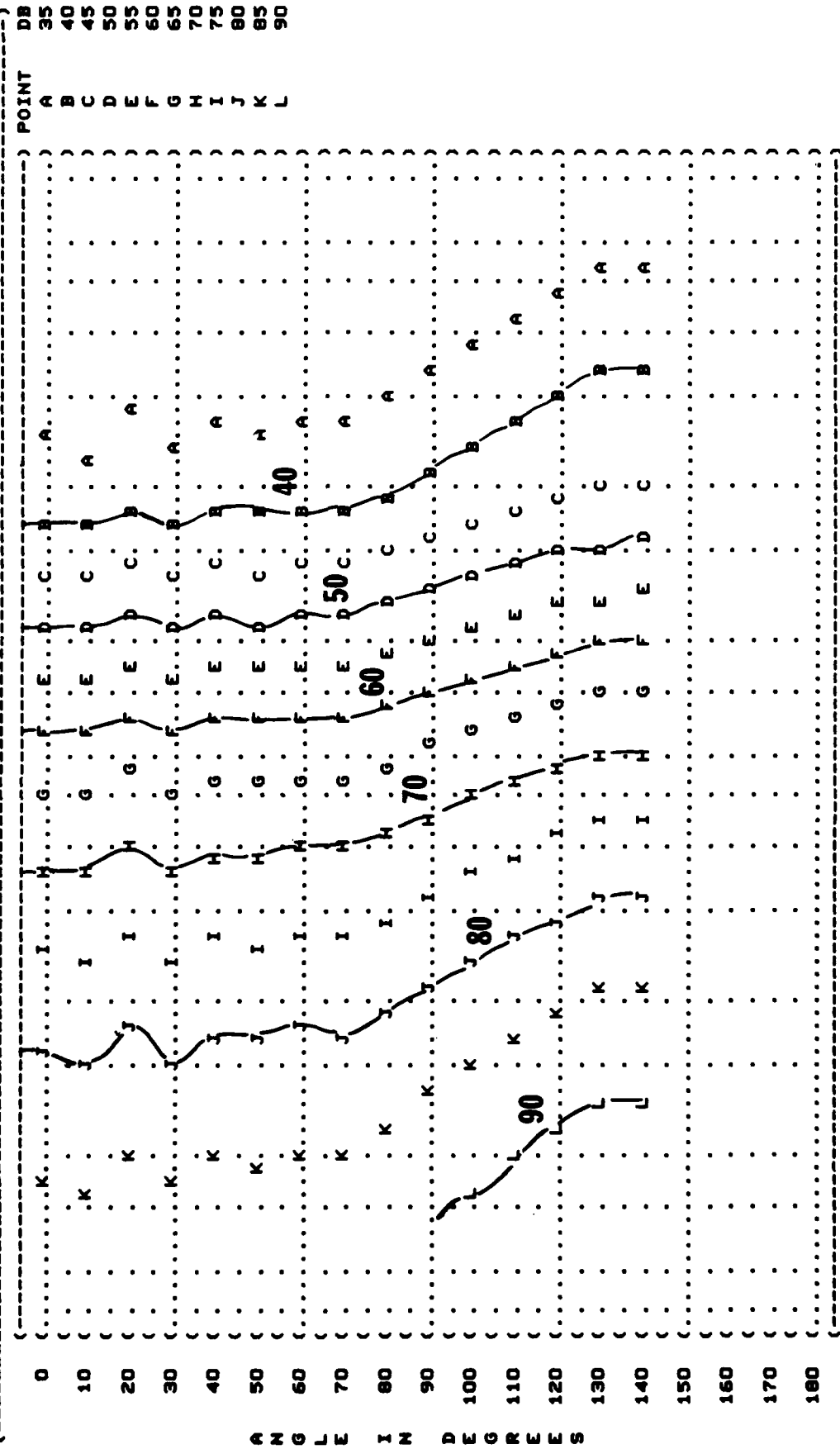
RUN 03

26 JUL 82

PAGE 19



( FIGURE: SOUND PRESSURE LEVEL (SPL)  
 ( 11 EQUAL LEVEL CONTOURS (DB)  
 ( 125 HZ OCTAVE BAND  
 ( NOISE SOURCE/SUBJECT: ( OPERATION:  
 ( KC-10A AIRCRAFT ( 70X RPM  
 ( CF6-50C2 ( ENGINE NO. 1  
 ( FAR FIELD NOISE ( FREE FLOW  
 ( METEOROLOGY:  
 ( TEMP = 15 C  
 ( BAR PRESS = .760 M HG  
 ( REL HUMID = 70 X  
 ( IDENTIFICATION:  
 ( OMEGA 1.4  
 ( TEST BS-005-001  
 ( RUN 03  
 ( 26 JUL 82  
 ( PAGE 20



A M G L E I N D E G R E E S

FIGURE: SOUND PRESSURE LEVEL [SPL]  
EQUAL LEVEL CONTOURS (DB)  
11 250 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:

OPERATION:  
KC-10A AIRCRAFT  
CF6-50C2  
FAR FIELD NOISE

METEOROLOGY:

TEMP = 15 C  
BAR PRESS = 760 MM HG  
REL HUMID = 70 %

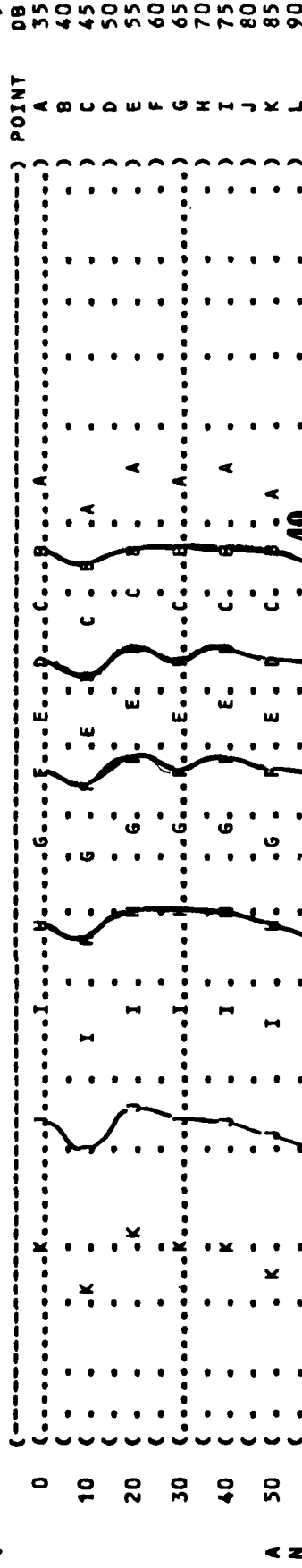
OMEGA 1.4

TEST BS-005-001

RUN 03

26 JUL 82

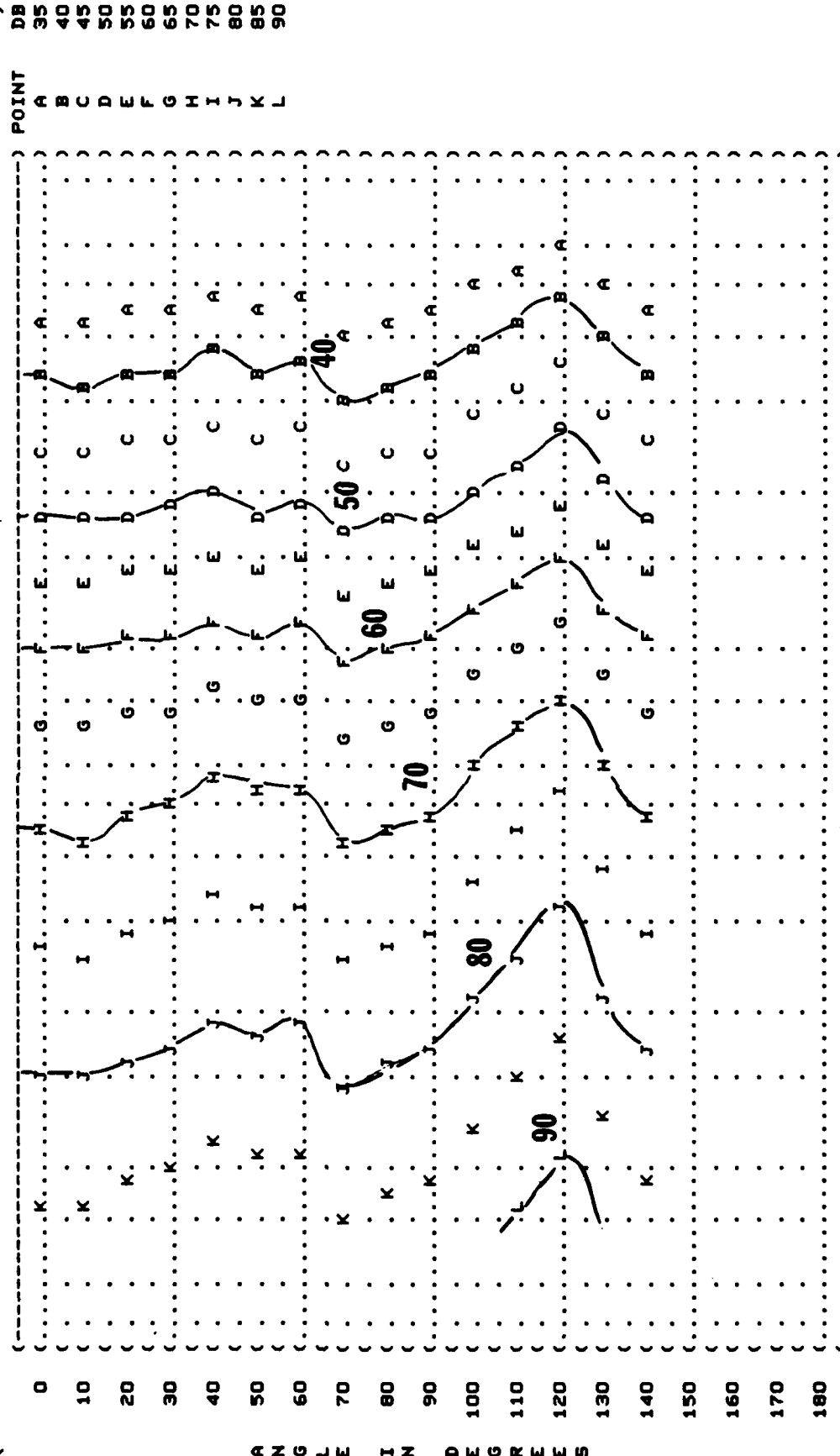
PAGE 21



AGLE IN DEGREE S



( FIGURE: SOUND PRESSURE LEVEL (SPL)  
 ( EQUAL LEVEL CONTOURS (DB)  
 ( 11 500 HZ OCTAVE BAND  
 ( NOISE SOURCE/SUBJECT: ( OPERATION: ( METEOROLOGY: ( IDENTIFICATION: ( )  
 ( KC-10A AIRCRAFT ( 70X RPM ( TEMP = 15 C ( OMEGA 1.4  
 ( CF6-50C2 ( ENGINE NO. 1 ( BAR PRESS = .760 M HG ( TEST BS-005-001  
 ( FAR FIELD NOISE ( FREE FLOW ( REL HUMID = 70 % ( RUN 03  
 ( ( ( ( ( 26 JUL 82  
 ( ( ( ( ( PAGE 22  
 ( )



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 DISTANCE FROM SOURCE (METERS)

FIGURE: SOUND PRESSURE LEVEL (SPL)  
EQUAL LEVEL CONTOURS (DB)  
11 1000 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:

OPERATION:

METEOROLOGY:

KC-10A AIRCRAFT  
CF6-50C2  
FAR FIELD NOISE

70X RPM  
ENGINE NO. 1  
FREE FLOW

TEMP = 15 C  
BAR PRESS = .760 M HG  
REL HUMID = 70 X

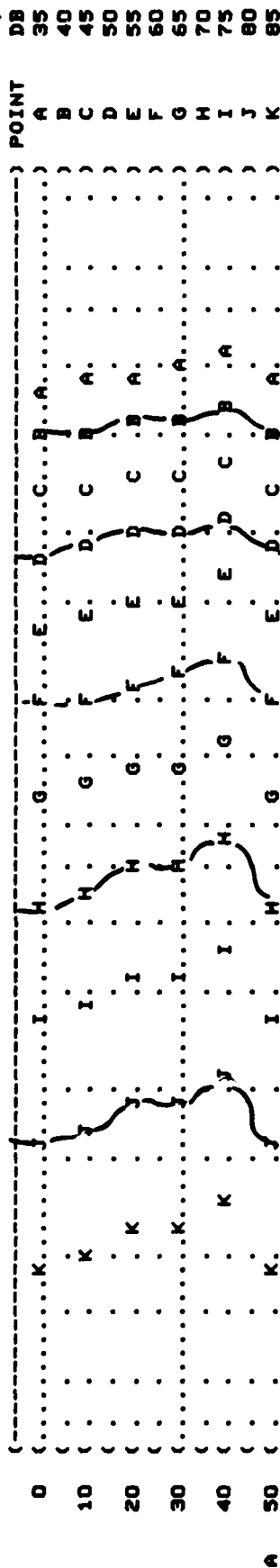
OMEGA 1.4

TEST BS-005-001

RUN 03

26 JUL 82

PAGE 23



AGLES

FIGURE: SOUND PRESSURE LEVEL [SPL]  
 11 EQUAL LEVEL CONTOURS (DB)  
 2000 HZ OCTAVE BAND

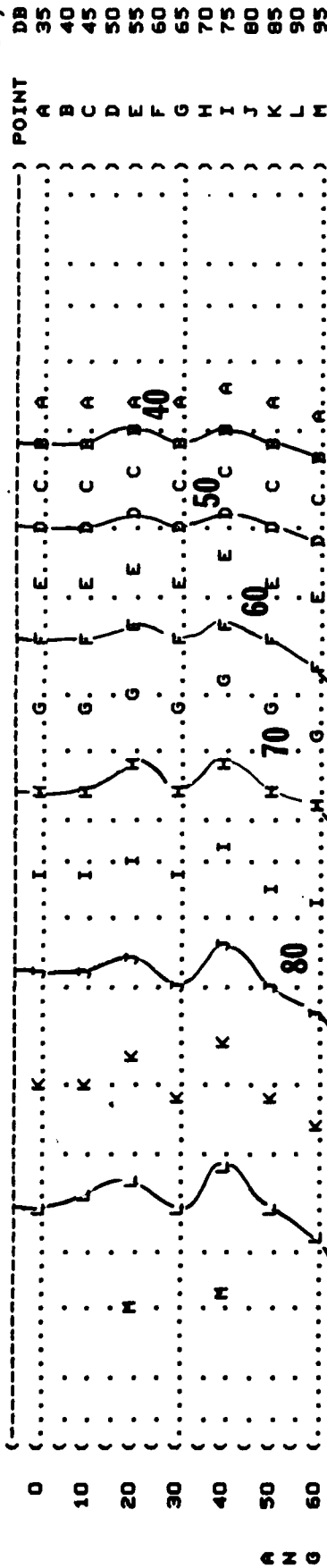
IDENTIFICATION:  
 OMEGA 1.4  
 TEST BS-005-001  
 RUN 03

NOISE SOURCE/SUBJECT:  
 KC-10A AIRCRAFT  
 CF6-50C2  
 FAR FIELD NOISE

METEOROLOGY:  
 TEMP = 15 C  
 BAR PRESS = .760 M HG  
 REL HUMID = 70 X

OPERATION:  
 70X RPM  
 ENGINE NO. 1  
 FREE FLOW

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ANGLE IN DEGREES

DISTANCE FROM SOURCE (METERS)

FIGURE: SOUND PRESSURE LEVEL (SPL)  
EQUAL LEVEL CONTOURS (DB)  
11 4000 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:

OPERATION:

METEOROLOGY:

KC-10A AIRCRAFT  
CF6-50C2  
FAR FIELD NOISE

70X RPM  
ENGINE NO. 1  
FREE FLOW

TEMP = 15 C  
BAR PRESS = .760 M HG  
REL HUMID = 70 X

OMEGA 1.4

TEST BS-005-001

RUN 03

26 JUL 82

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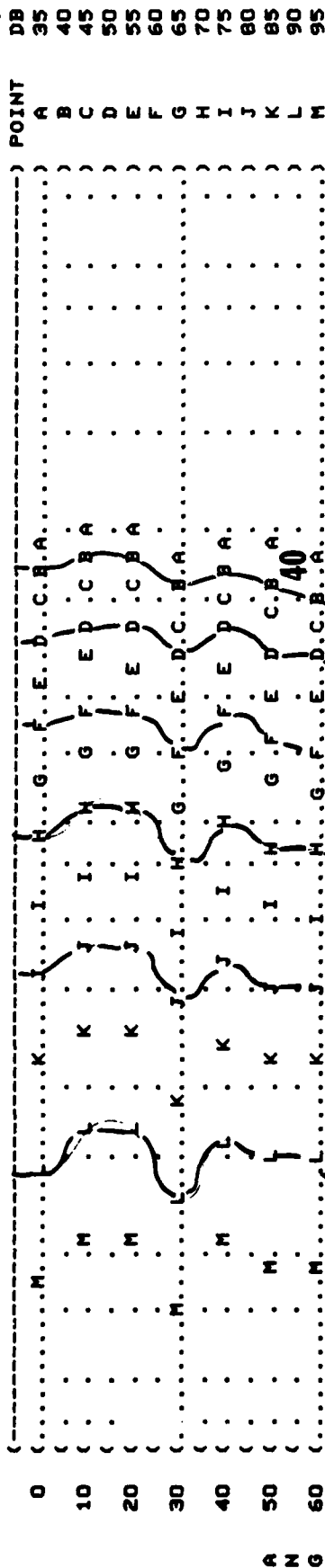


FIGURE: SOUND PRESSURE LEVEL [SPL]  
EQUAL LEVEL CONTOURS (DB)  
8000 HZ OCTAVE BAND

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IDENTIFICATION:

OMEGA 1.4

TEST BS-005-001

RUN 03

METEOROLOGY:

TEMP = 15 C

BAR PRESS = .760 M HG

REL HUMID = 70 %

OPERATION:

70% RPM

ENGINE NO. 1

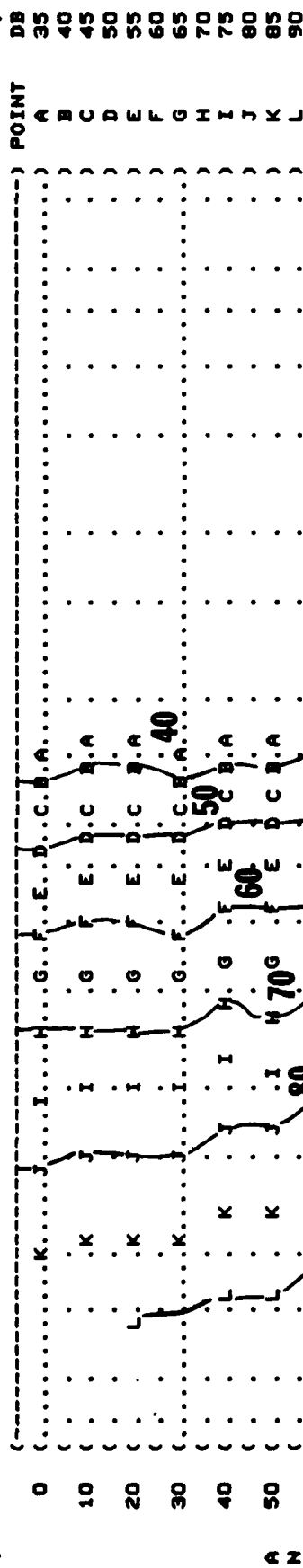
FREE FLOW

NOISE SOURCE/SUBJECT:

KC-10A AIRCRAFT

CF6-50C2

FAR FIELD NOISE



ANGLES

IDENTIFICATION:  
OMEGA 1.4  
TEST BS-003-00

### • METEOROLOGY:

**RUN 04**

BAR PRESS = .760 M HG

REL HUMID = 70 %

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IDENTIFICATION:  
OMEGA 1.4  
TEST 89-005-001  
RUN 04  
26 JUL 82  
PAGE 19

METEOROLOGY:  
TEMP = 15 C  
BAR PRESS = .760 M HG  
REL HUMID = 70 X

METEOROLOGY:  
TEMP = 15 C  
BAR PRESS = .760 M HG  
REL HUMID = 70 X

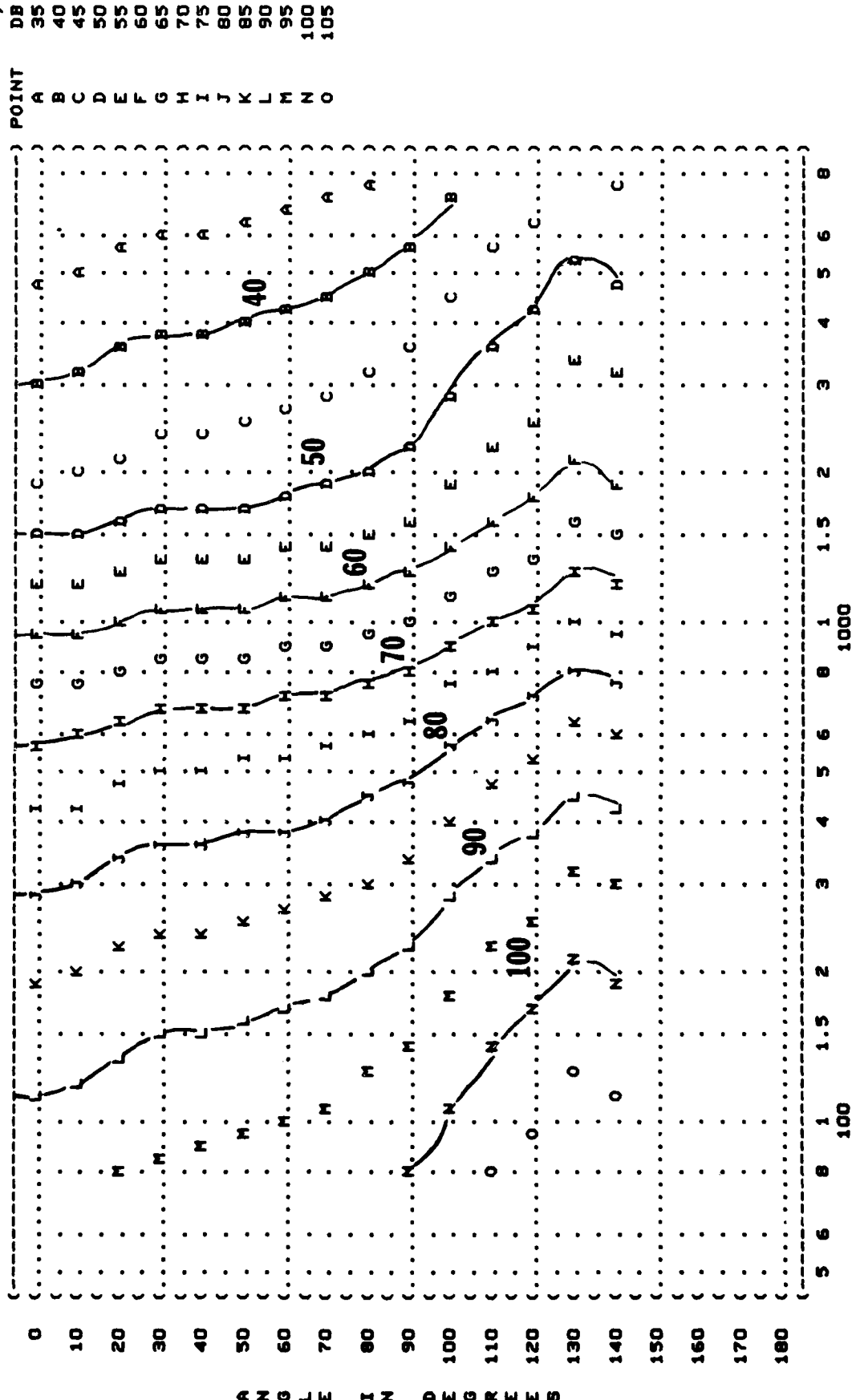


FIGURE: SOUND PRESSURE LEVEL [SPL]  
EQUAL LEVEL CONTOURS (DB)  
11 125 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT: OPERATION:  
( KC-10A AIRCRAFT 95% RPM  
( CF6-50C2 ENGINE NO. 1  
( FAR FIELD NOISE FREE FLOW

METEOROLOGY:  
( TEMP = 15 C  
( BAR PRESS = .760 M HG  
( REL HUMID = 70 %

IDENTIFICATION:  
( OMEGA 1.4  
( TEST BS-005-001  
( RUN 04  
( PAGE 20



AGLE IN DEGREE S





FIGURE: SOUND PRESSURE LEVEL (SPL)  
EQUAL LEVEL CONTOURS (DB)  
11 500 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:

OPERATION:  
( ( 95% RPM  
( ( ENGINE NO. 1  
( ( FREE FLOW

METEOROLOGY:

TEMP = 15 C  
BAR PRESS = .760 M HG  
REL HUMID = 70 %

IDENTIFICATION:

OMEGA 1.4

TEST BS-005-001

RUN 04

26 JUL 82

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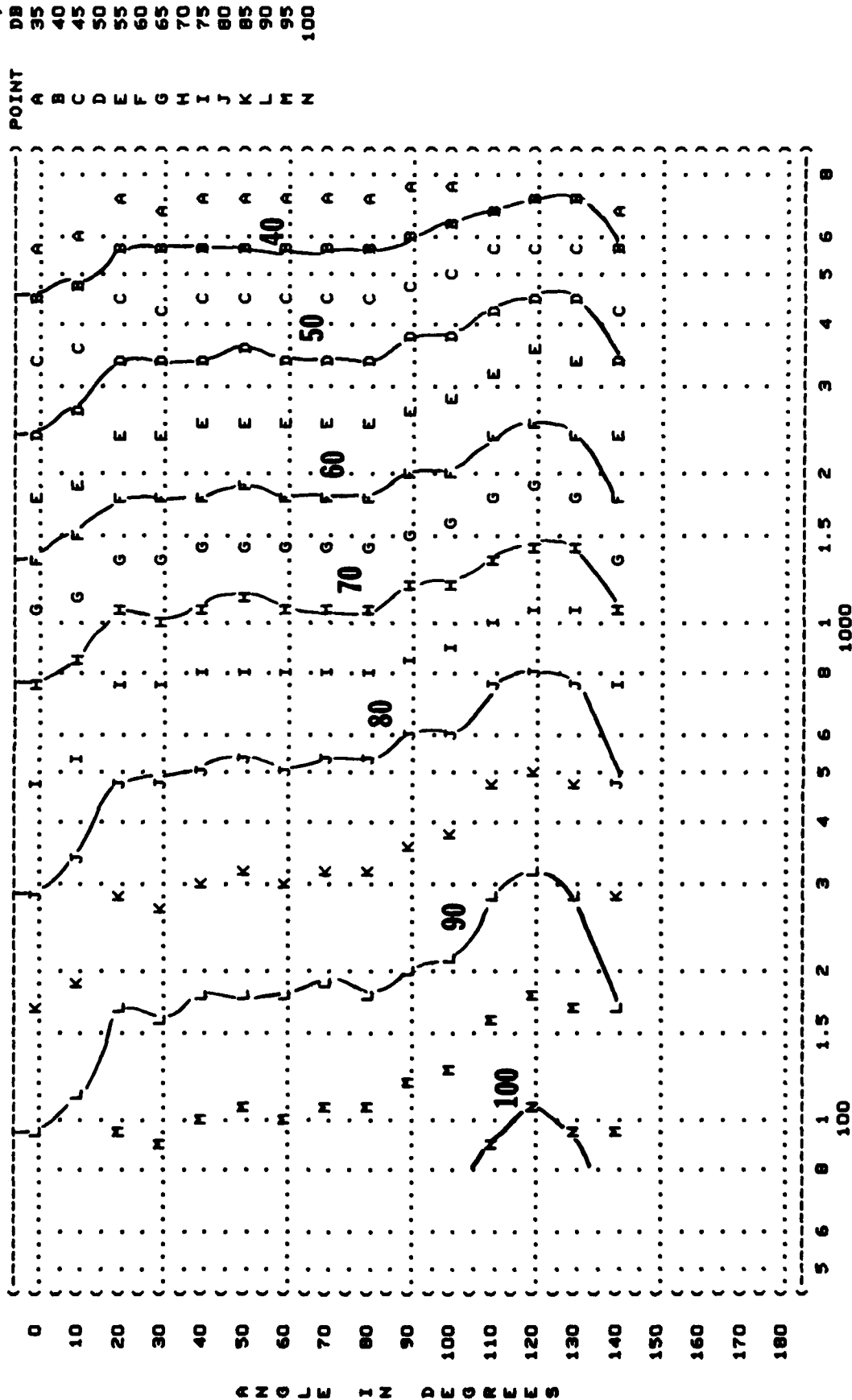
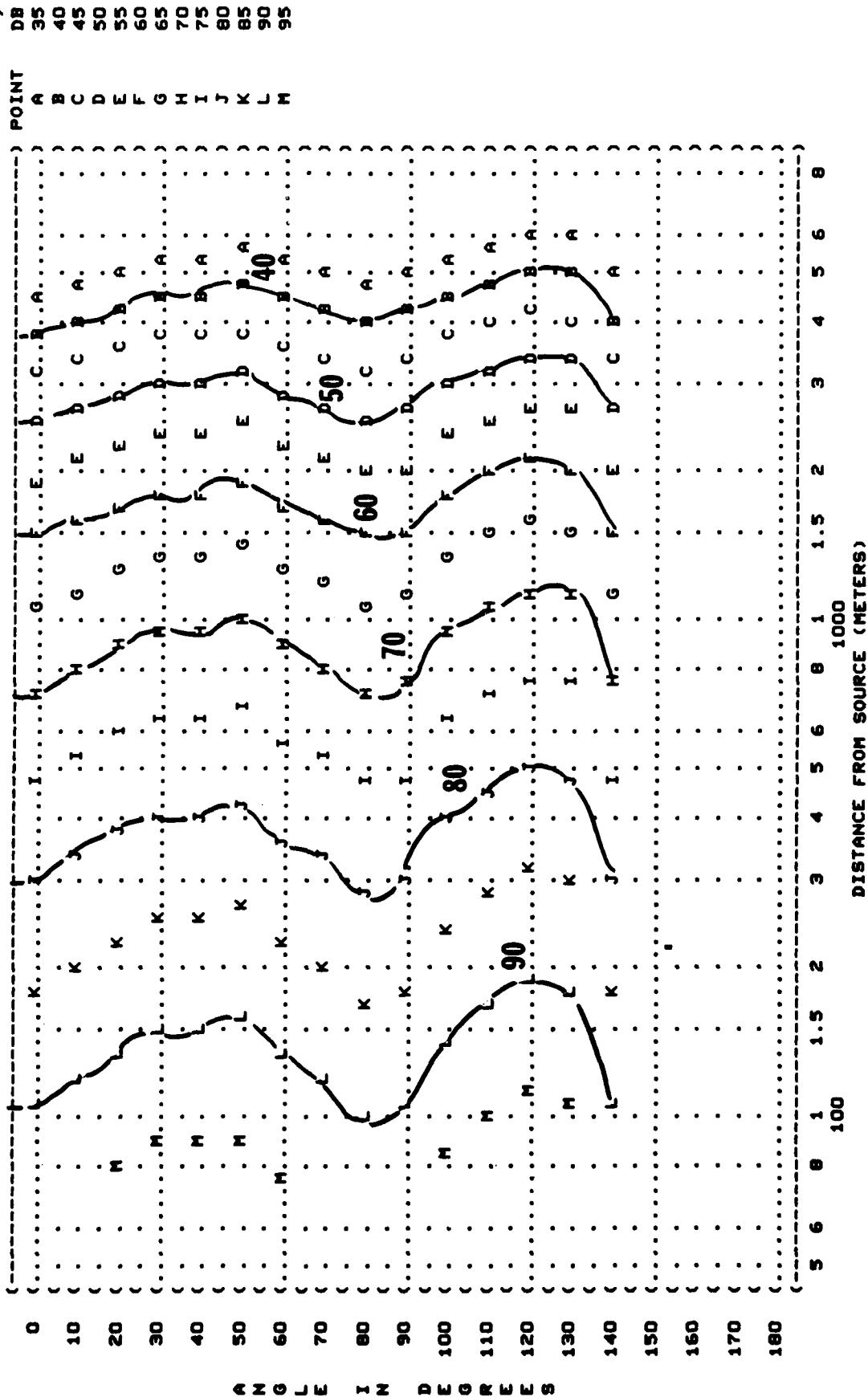
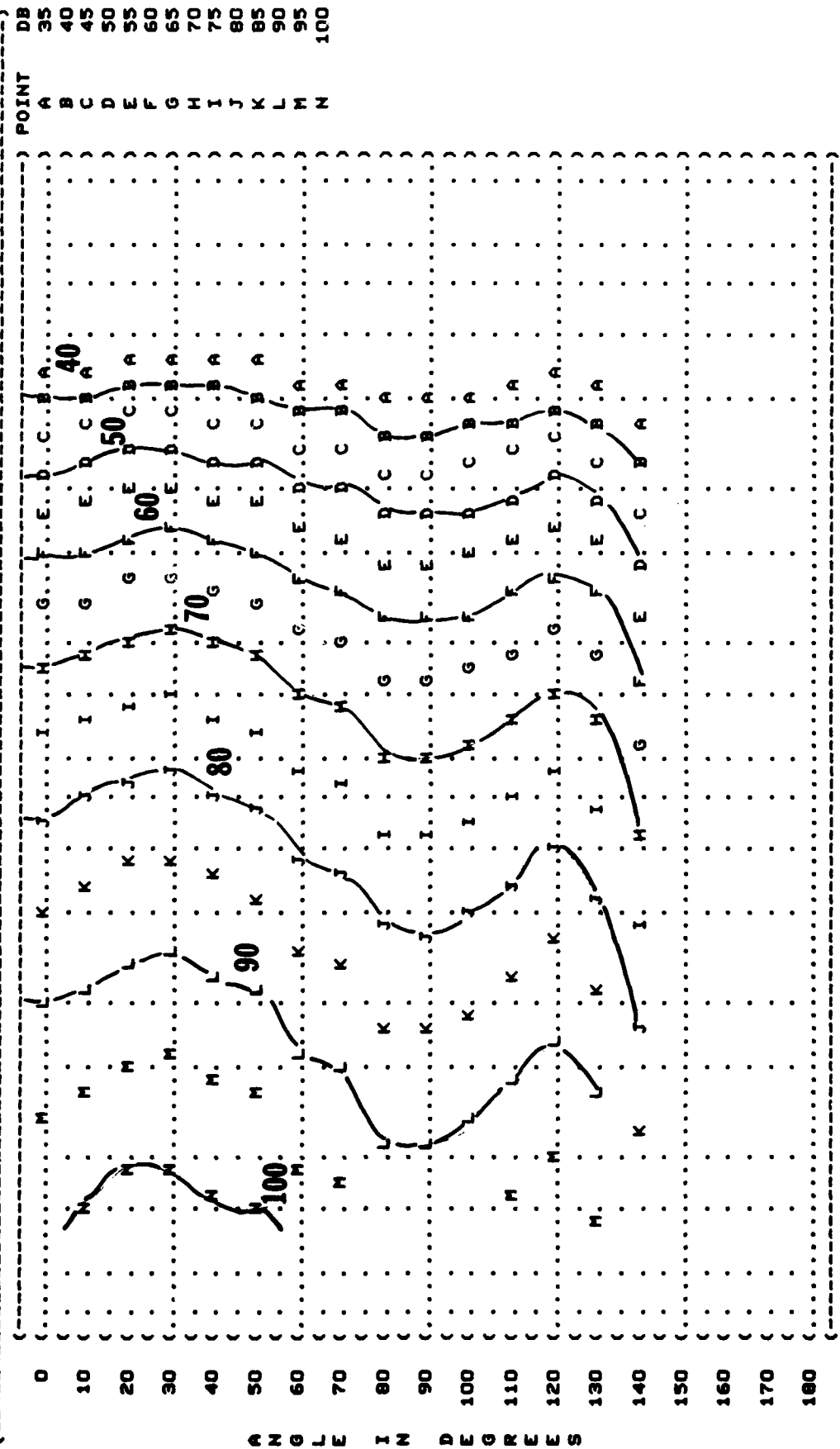


FIGURE: SOUND PRESSURE LEVEL (SPL)  
EQUAL LEVEL CONTOURS (DB)  
11 1000 HZ OCTAVE BAND

IDENTIFICATION:  
OMEGA 1.4  
TEST BS-005-001  
RUN 04  
METEOROLOGY:  
TEMP = 15 C  
BAR PRESS = .760 M HG  
REL HUMID = 70 %  
OPERATION:  
KC-10A AIRCRAFT  
95X RPM  
ENGINE NO. 1  
FREE FLOW  
NOISE SOURCE/SUBJECT:

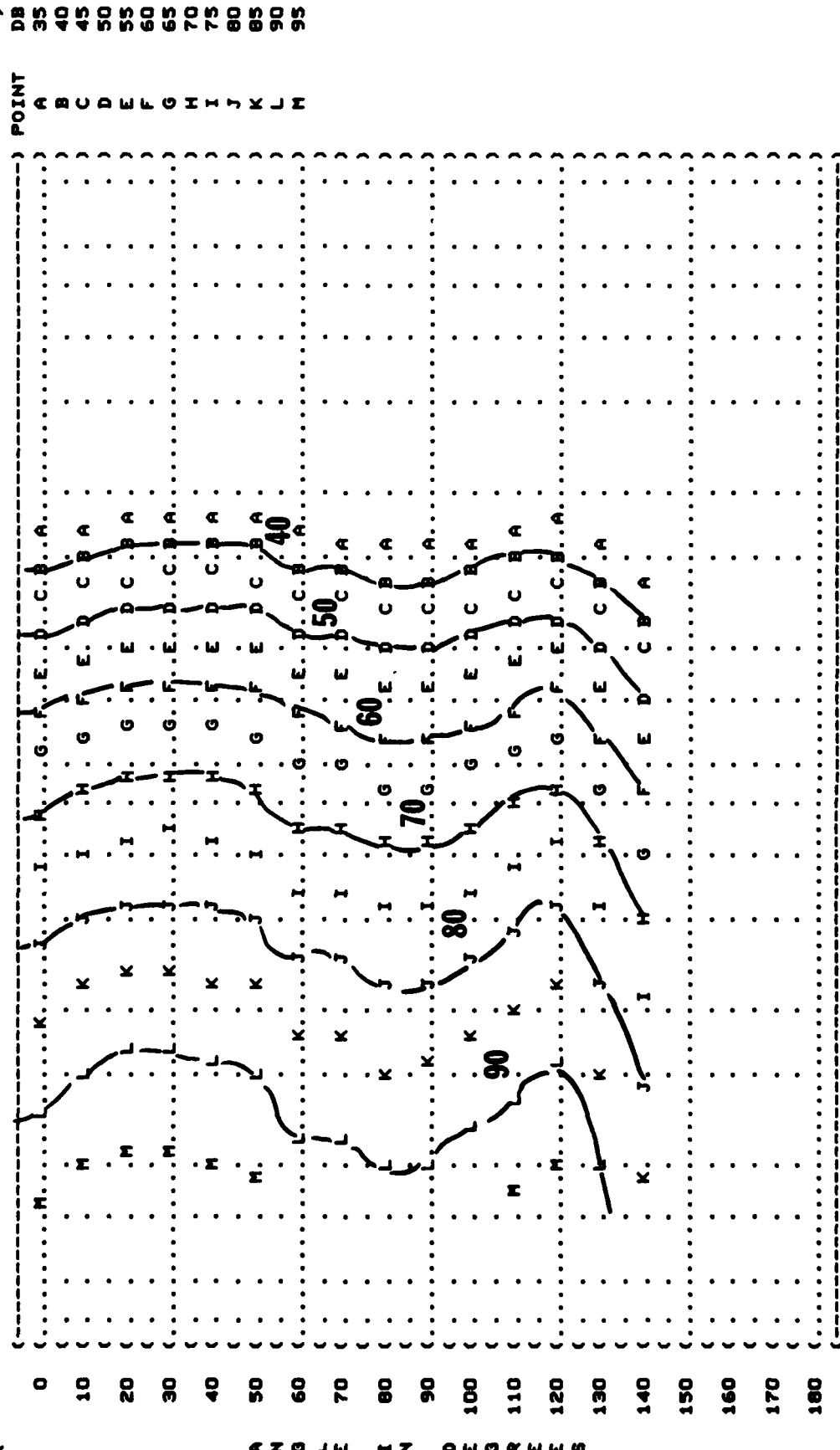


( FIGURE: SOUND PRESSURE LEVEL (SPL)  
 ( 11 EQUAL LEVEL CONTOURS (DB)  
 ( 2000 HZ OCTAVE BAND  
 ( NOISE SOURCE/SUBJECT: ( OPERATION:  
 ( KC-10A AIRCRAFT ( 95X RPM  
 ( CF6-50C2 ( ENGINE NO. 1  
 ( FAR FIELD NOISE ( FREE FLOW  
 ( METEOROLOGY:  
 ( TEMP = 15 C  
 ( BAR PRESS = .760 M HG  
 ( REL HUMID = 70 %  
 ( IDENTIFICATION:  
 ( OMEGA 1.4  
 ( TEST BS-005-001  
 ( RUN 04  
 ( PAGE 24



DISTANCE FROM SOURCE (METERS)

( FIGURE: SOUND PRESSURE LEVEL [SPL]  
 ( EQUAL LEVEL CONTOURS (DB)  
 ( 11 4000 HZ OCTAVE BAND  
 ( NOISE SOURCE/SUBJECT: ( OPERATION:  
 ( KC-10A AIRCRAFT ( 95X RPM  
 ( CF6-S0C2 ( ENGINE NO. 1  
 ( FAR FIELD NOISE ( FREE FLOW  
 ( METEOROLOGY: ( TEMP = 15 C  
 ( BAR PRESS = .760 M HG  
 ( REL HUMID = 70 %  
 ( IDENTIFICATION: ( OMEGA 1.4  
 ( TEST BS-005-001  
 ( RUN 04  
 ( 26 JUL 82  
 ( PAGE 25



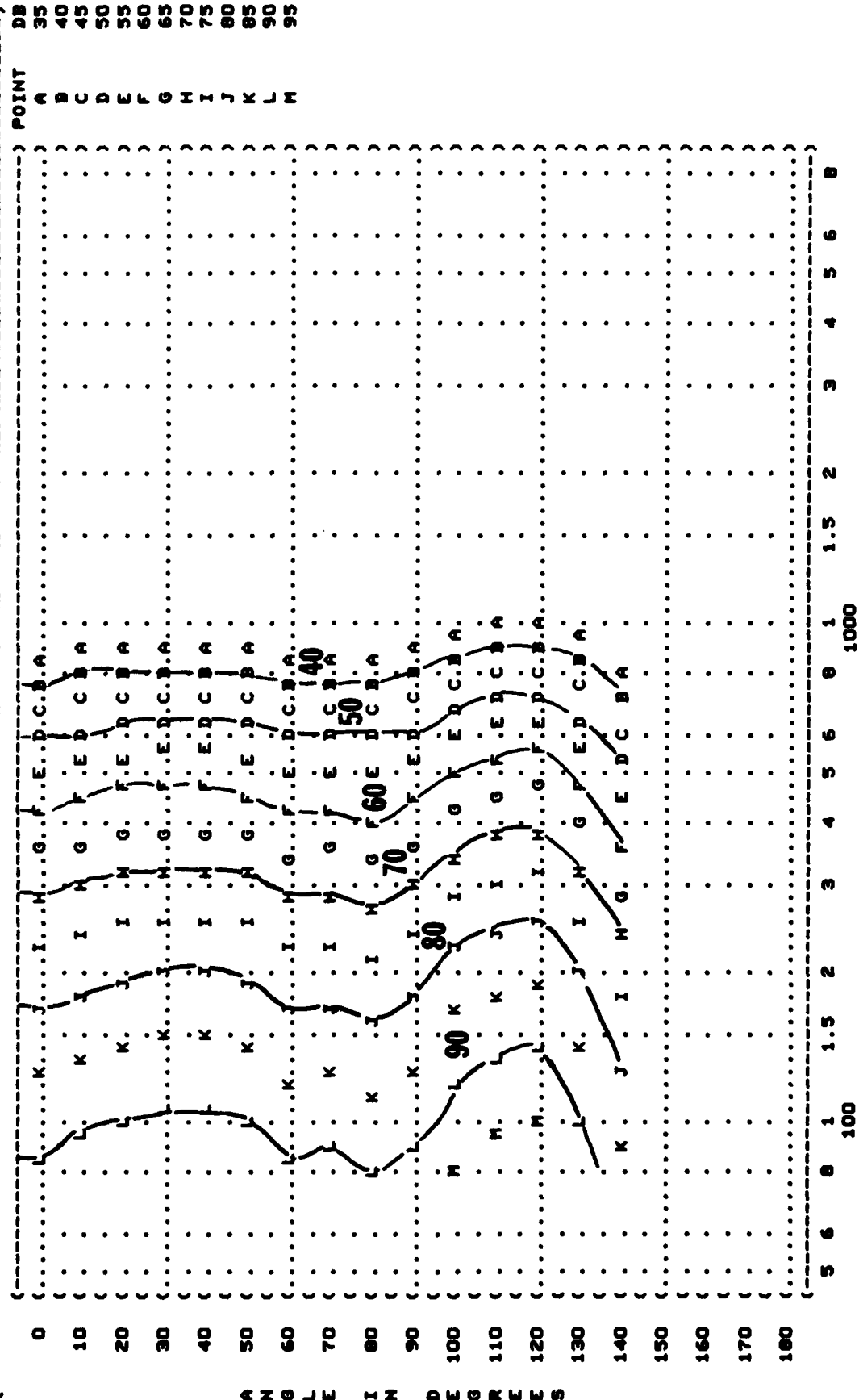
5 6 8 1 1.5 2 3 4 5 6 8  
 100 1000  
 DISTANCE FROM SOURCE (METERS)

FIGURE: SOUND PRESSURE LEVEL (SPL)  
 11 EQUAL LEVEL CONTOURS (DB)  
 8000 HZ OCTAVE BAND

IDENTIFICATION:  
 OMEGA 1.4  
 TEST BS-005-001  
 RUN 04  
 26 JUL 82  
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NOISE SOURCE/SUBJECT: ( OPERATION: )  
 KC-10A AIRCRAFT ( 95X RPM )  
 CF6-SOC2 ( ENGINE NO. 1 )  
 FAR FIELD NOISE ( FREE FLOW )

METEOROLOGY:  
 TEMP = 15 C  
 BAR PRESS = .760 M HG  
 REL HUMID = 70 %



IDENTIFICATION: OMEGA 1.4

## ● METEOROLOGY:

1631  
RUN 05

TEMP = 15 C

26 JUL 82

REL HUMID = 70 x

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FIGURE: SOUND PRESSURE LEVEL [SPL]  
EQUAL LEVEL CONTOURS (DB)

11

63 HZ OCTAVE BAND

IDENTIFICATION:  
OMEGA 1.4  
TEST BS-005-001  
RUN 05

NOISE SOURCE/SUBJECT:

OPERATION:

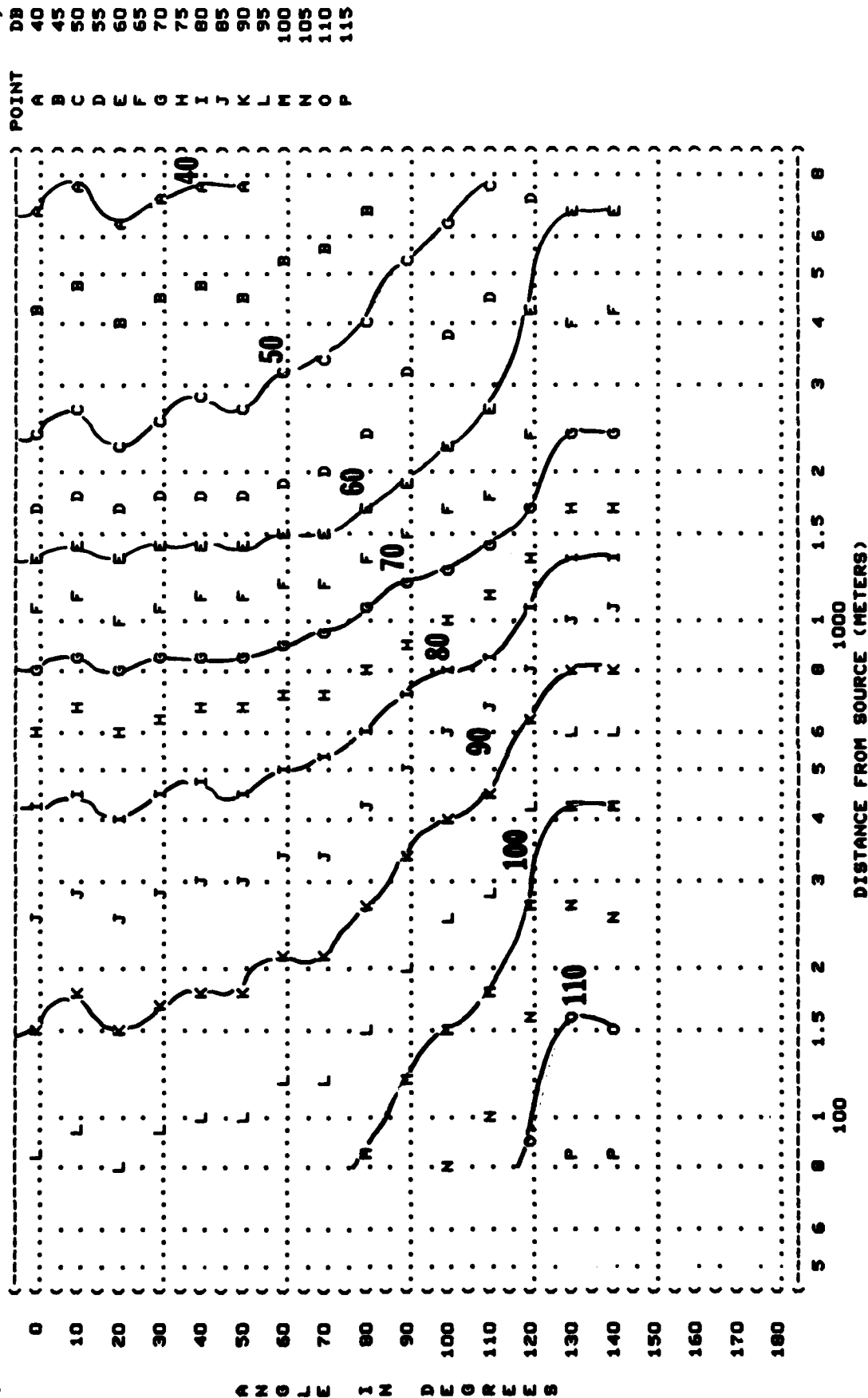
METEOROLOGY:

KC-10A AIRCRAFT  
CF6-50C2  
FAR FIELD NOISE

MAXIMUM CONTINUOUS POWER  
ENGINE NO. 1  
FREE FLOW

TEMP = 15 C  
BAR PRESS = .750 M HG  
REL HUMID = 70 %

PAGE 19





IDENTIFICATION:  
OMEGA 1.4  
TEST BS-005-00  
RUN 05

### **0 METEOROLOGY:**

TEMP = 15 C  
BAR PRESS = .760 M HG  
REL HUMID = 70 %



FIGURE: SOUND PRESSURE LEVEL (SPL)  
EQUAL LEVEL CONTOURS (DB)  
11 250 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:

OPERATION:

METEOROLOGY:

KC-10A AIRCRAFT  
CF6-SOC2  
FAR FIELD NOISE

MAXIMUM CONTINUOUS POWER  
ENGINE NO. 1  
FREE FLOW

TEMP = 15 C  
BAR PRESS = .760 M HG  
REL HUMID = 70 X

OMEGA 1.4

TEST BS-005-001

RUN OS

26 JUL 82

PAGE 21

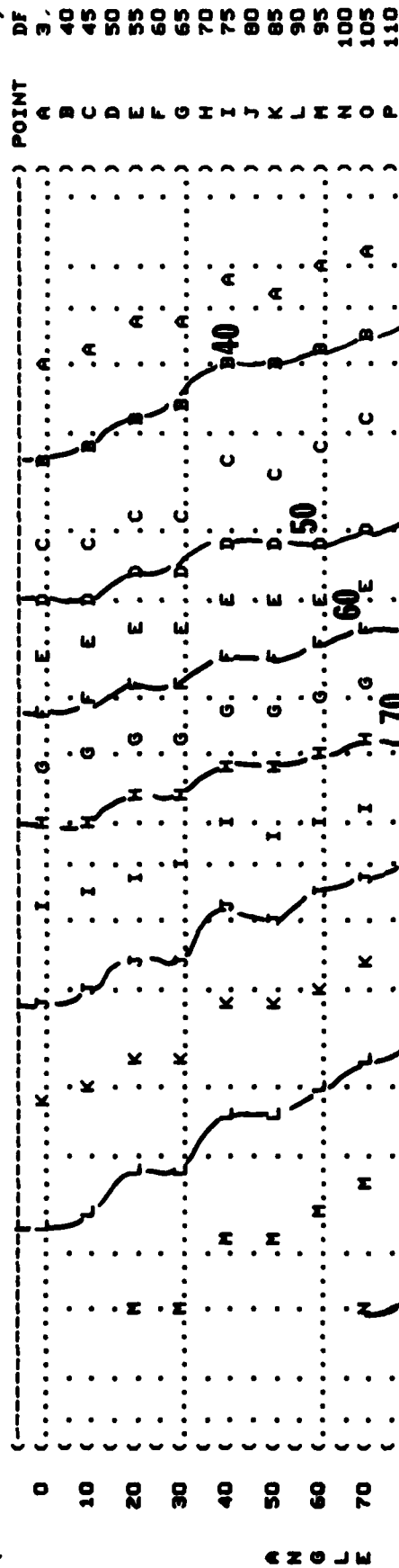


FIGURE: SOUND PRESSURE LEVEL [SPL]  
EQUAL LEVEL CONTOURS (DB)  
500 HZ OCTAVE BAND

11

IDENTIFICATION:

OMEGA 1.4

TEST BS-005-001

RUN 05

NOISE SOURCE/SUBJECT:

OPERATION:

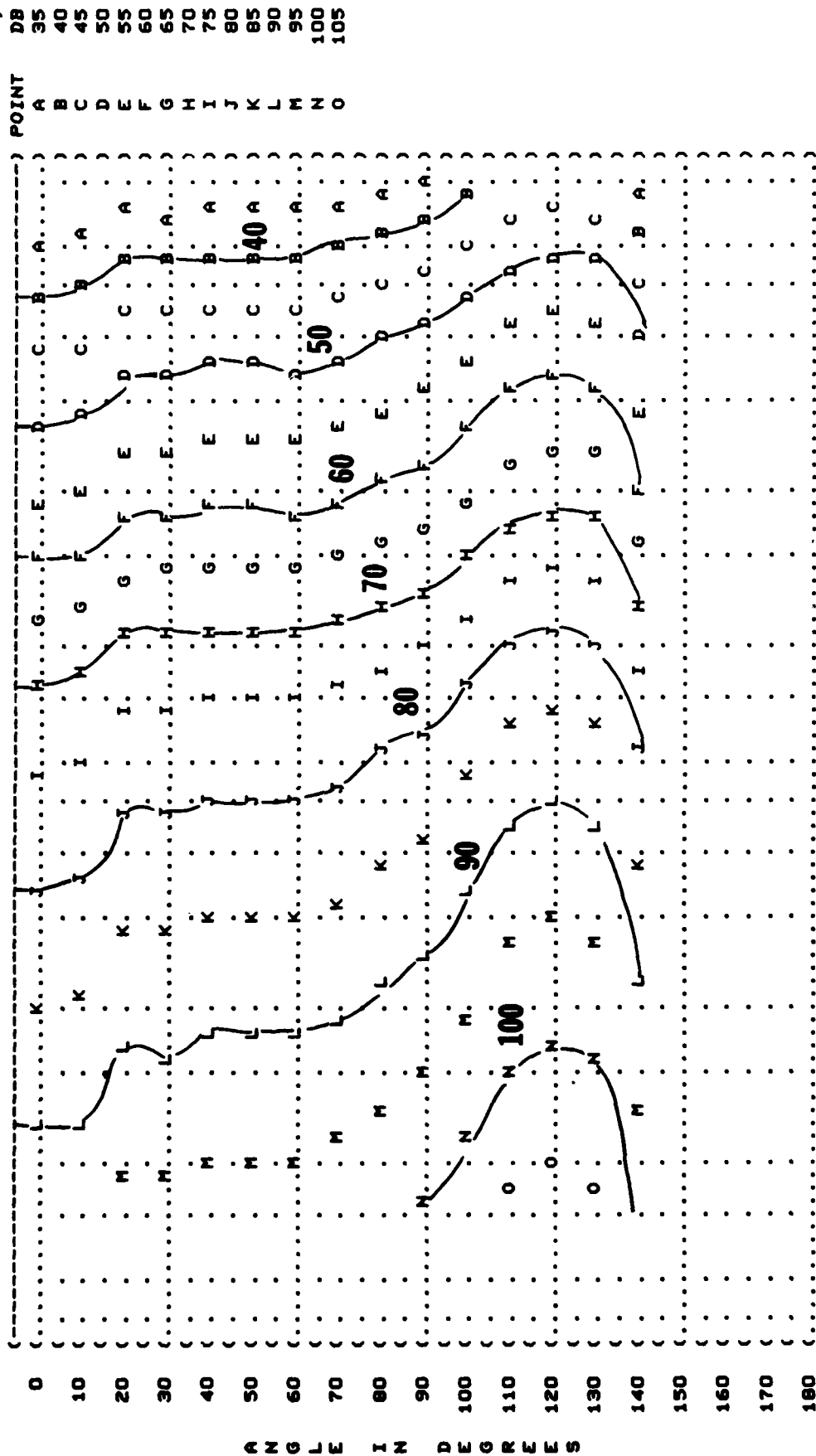
METEOROLOGY:

KC-10A AIRCRAFT  
CF6-50C2  
FAR FIELD NOISE

MAXIMUM CONTINUOUS POWER  
ENGINE NO. 1  
FREE FLOW

TEMP = 15 C  
BAR PRESS = .760 M HG  
REL HUMID = 70 X

PAGE 22



DISTANCE FROM SOURCE (METERS)

( FIGURE: SOUND PRESSURE LEVEL [SPL]  
 ( EQUAL LEVEL CONTOURS (DB)  
 ( 11 1000 HZ OCTAVE BAND  
 ( NOISE SOURCE/SUBJECT: ( OPERATION:  
 ( KC-10A AIRCRAFT ( TEMPERATURE = 15 C  
 ( CF6-50C2 ( MAXIMUM CONTINUOUS POWER ( BAR PRESS = .760 M HG  
 ( FAR FIELD NOISE ( ENGINE NO. 1 ( REL HUMID = 70 %  
 ( FREE FLOW  
 ( IDENTIFICATION:  
 ( OMEGA 1.4  
 ( TEST BS-005-001  
 ( RUN 05  
 ( 26 JUL 82  
 ( PAGE 23

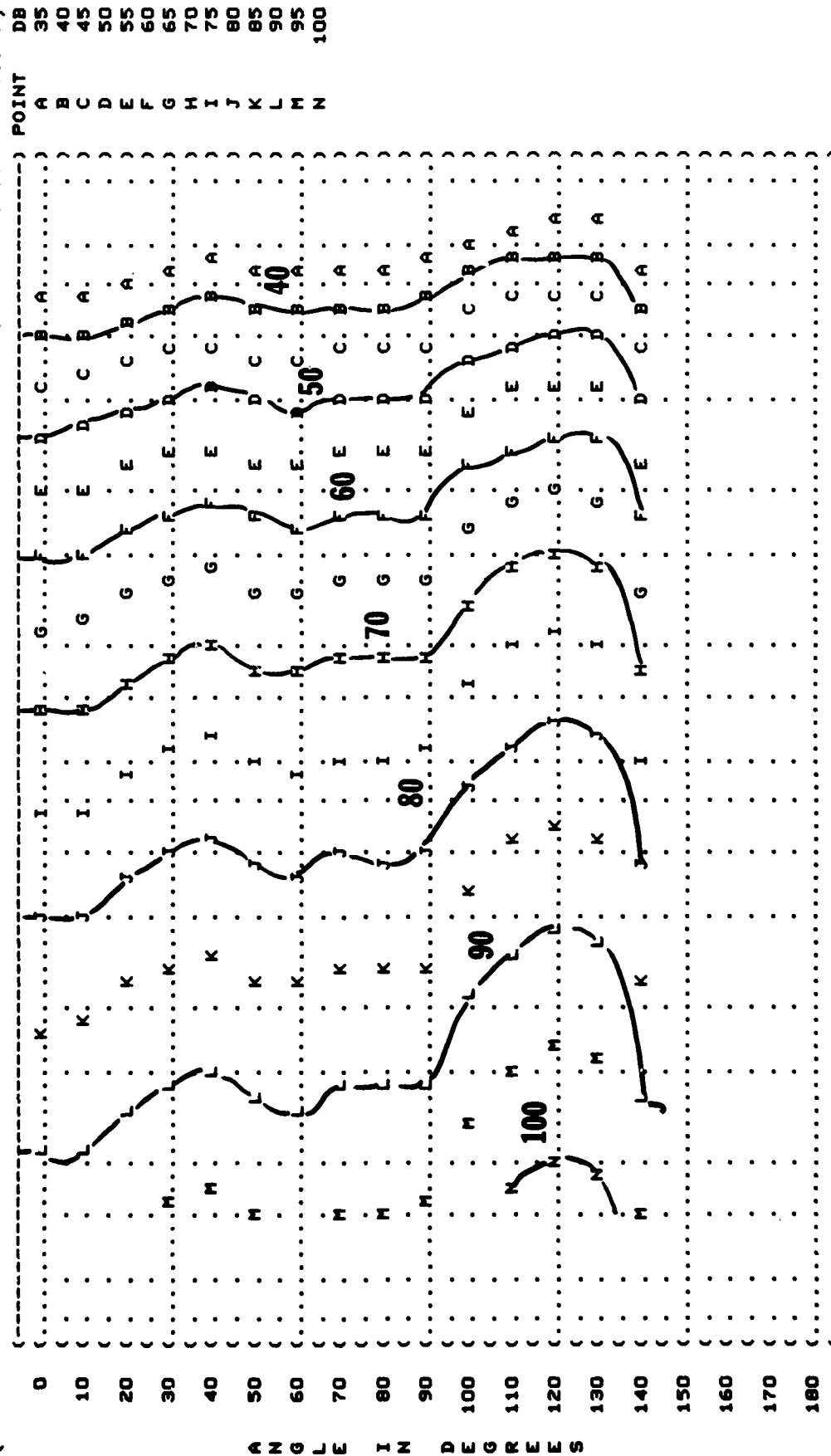


FIGURE: SOUND PRESSURE LEVEL (SPL)  
EQUAL LEVEL CONTOURS (DB)  
11 2000 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:

OPERATION:

METEOROLOGY:

OMEGA 1.4

TEST BS-005-001

RUN CS

KC-10A AIRCRAFT

MAXIMUM CONTINUOUS POWER

TEMP = 15 C

CF6-50C2

ENGINE NO. 1

BAR PRESS = .760 M HG

FAR FIELD NOISE

FREE FLOW

PAGE 24

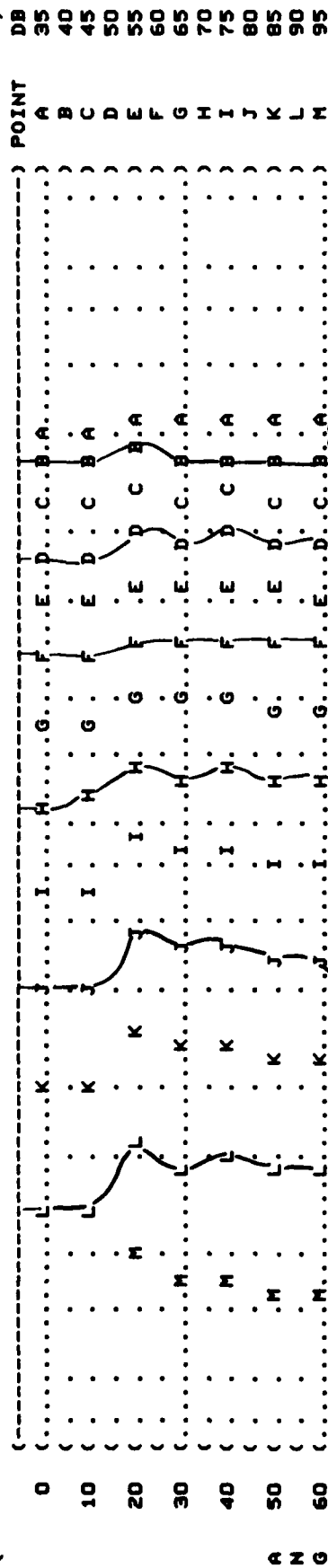


FIGURE: SOUND PRESSURE LEVEL [SPL]  
EQUAL LEVEL CONTOURS (DB)  
4000 HZ OCTAVE BAND

11

NOISE SOURCE/SUBJECT:

OPERATION:

METEOROLOGY:

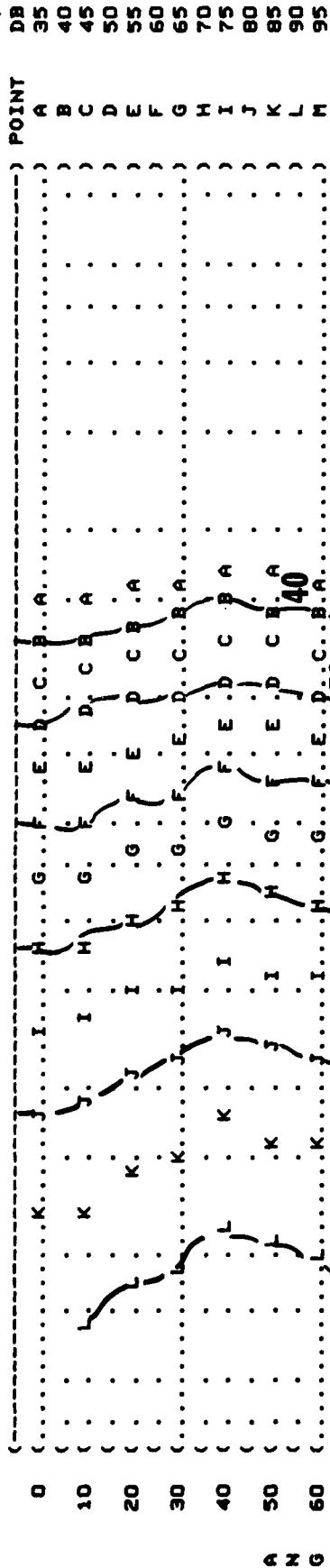
KC-10A AIRCRAFT  
CF6-SOC2  
FAR FIELD NOISE

MAXIMUM CONTINUOUS POWER  
ENGINE NO. 1  
FREE FLOW

TEMP = 15 C  
BAR PRESS = .760 M HG  
REL HUMID = 70 %

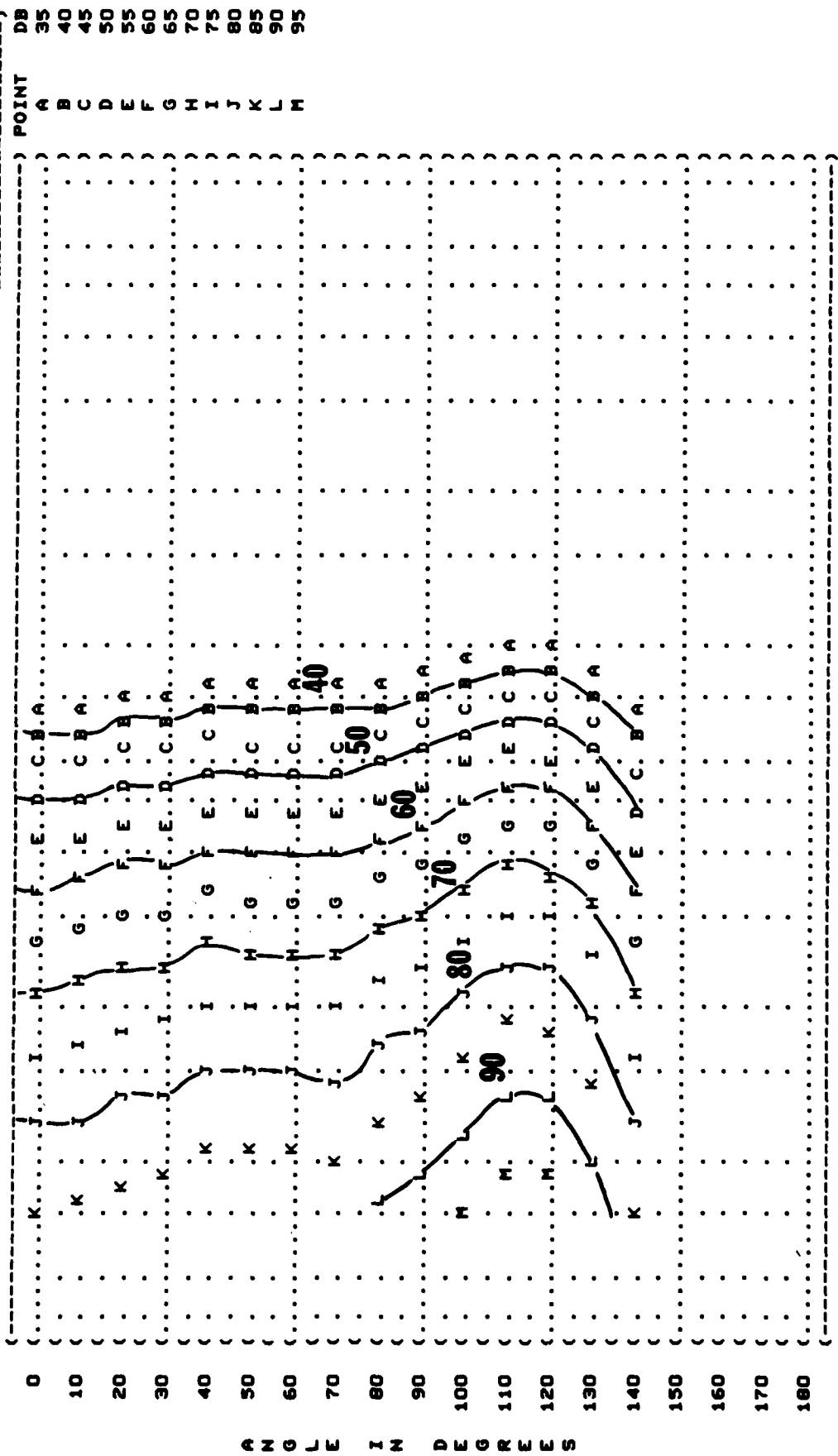
IDENTIFICATION:  
OMEGA 1.4  
TEST BS-005-001  
RUN 05

PAGE 25



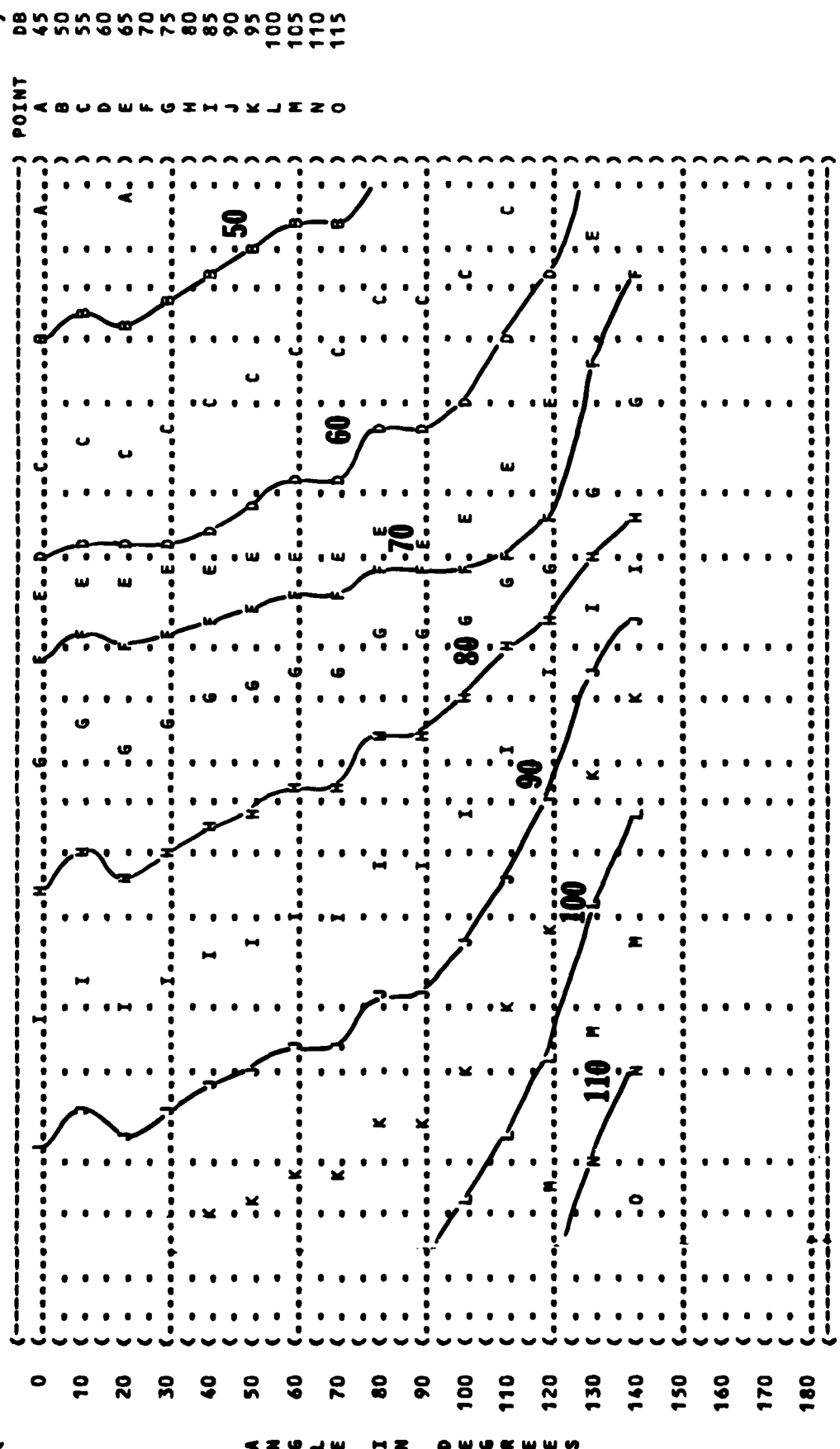
ANSWER

( FIGURE: SOUND PRESSURE LEVEL [SPL]  
 ( 11 EQUAL LEVEL CONTOURS (DB)  
 ( 8000 HZ OCTAVE BAND  
 ( NOISE SOURCE/SUBJECT: ( OPERATION:  
 ( KC-10A AIRCRAFT ( MAXIMUM CONTINUOUS POWER  
 ( CF6-30C2 ( ENGINE NO. 1  
 ( FAR FIELD NOISE ( FREE FLOW  
 ( METEOROLOGY:  
 ( TEMP = 15 C  
 ( BAR PRESS = .760 M HG  
 ( REL HUMID = 70 %  
 ( IDENTIFICATION:  
 ( OMEGA 1.4  
 ( TEST BS-005-001  
 ( RUN 05  
 ( 26 JUL 82  
 ( PAGE 26



POINT	DB
A	35
B	40
C	45
D	50
E	55
F	60
G	65
H	70
I	75
J	80
K	85
L	90
M	95

( FIGURE: SOUND PRESSURE LEVEL [SPL]  
 ( EQUAL LEVEL CONTOURS (DB)  
 ( 11 31.5 HZ OCTAVE BAND  
 ( NOISE SOURCE/SUBJECT: ( OPERATION:  
 ( KC-10A AIRCRAFT ( TAKEOFF RATED THRUST  
 ( CF6-50C2 ( ENGINE NO. 1  
 ( FAR FIELD NOISE ( FREE FLOW  
 ( NOISE SOURCE/SUBJECT: ( METEOROLOGY:  
 ( TEMP = 15 C  
 ( BAR PRESS = .760 M HG  
 ( REL HUMID = 70 %  
 ( IDENTIFICATION:  
 ( OMEGA 1-4  
 ( TEST 85-005-001  
 ( RUN 06  
 ( 26 JUL 82  
 ( PAGE 18

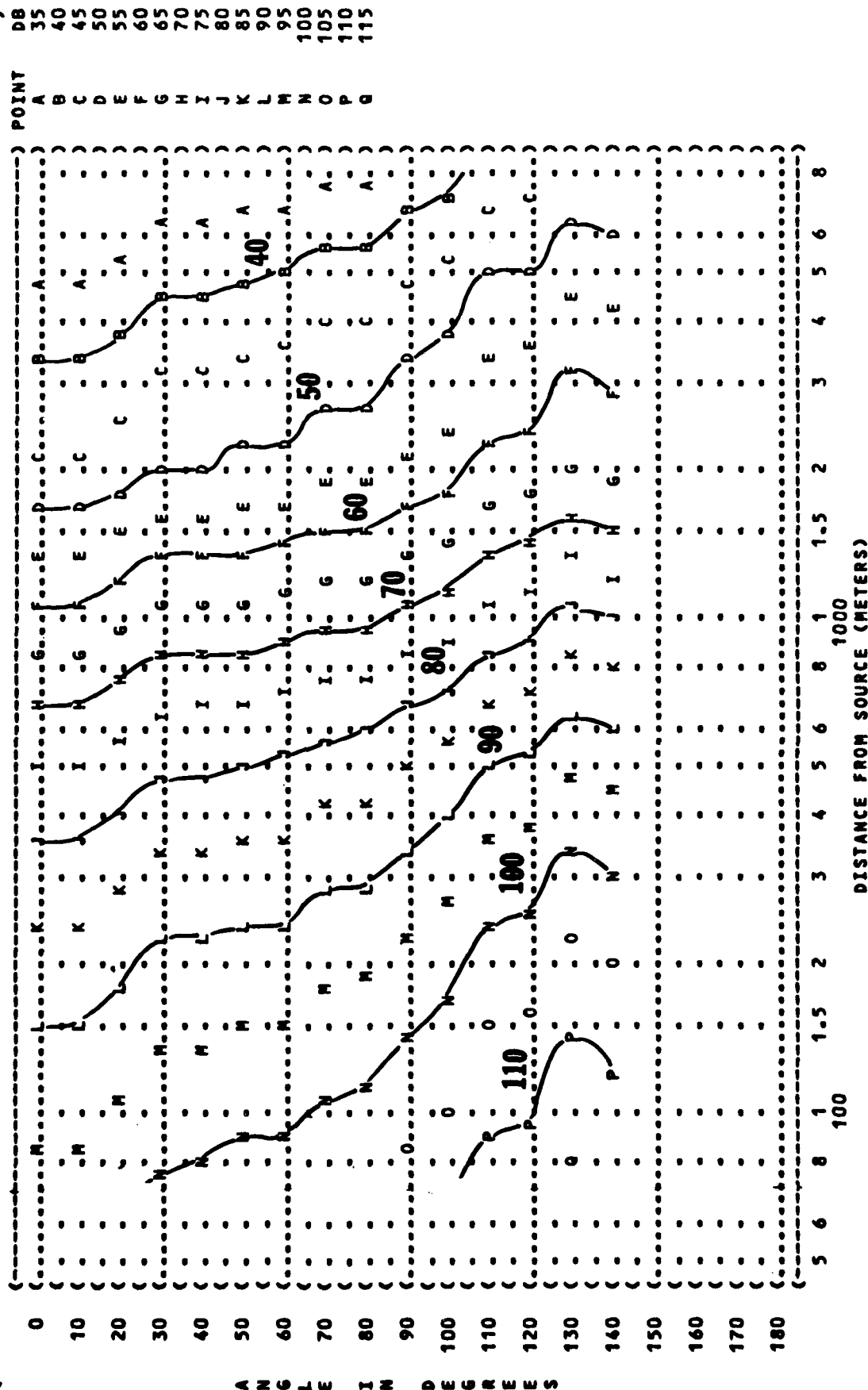




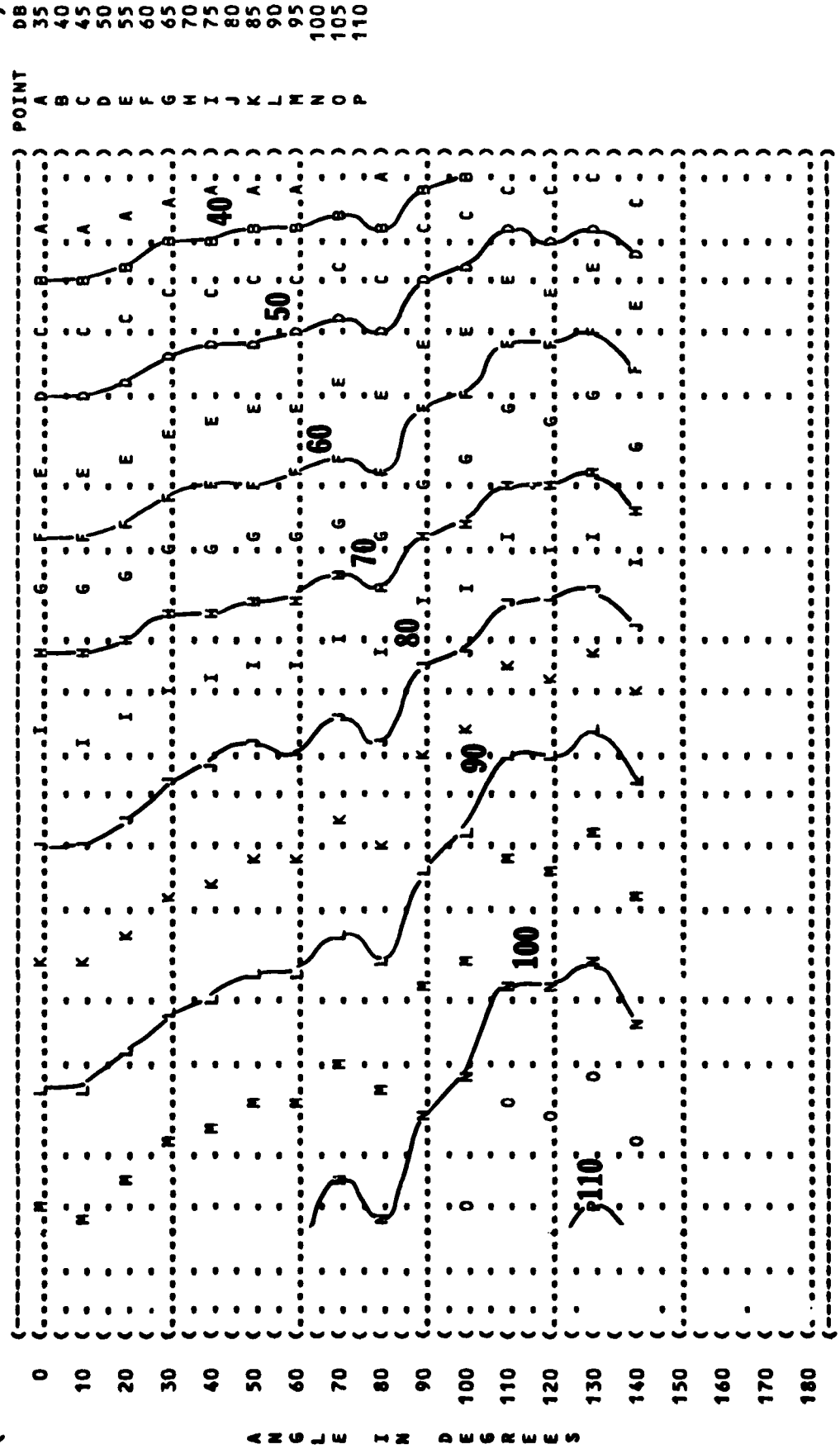




( FIGURE: SOUND PRESSURE LEVEL [SPL]  
 ( 11 EQUAL LEVEL CONTOURS (DB)  
 ( 250 HZ OCTAVE BAND  
 ( NOISE SOURCE/SUBJECT: ( OPERATION:  
 ( KC-10A AIRCRAFT ( TAKEOFF RATED THRUST  
 ( CF6-50C2 ( ENGINE NO. 1  
 ( FAR FIELD NOISE ( FREE FLOW  
 ( METEOROLOGY:  
 ( TEMP = 15 C  
 ( BAR PRESS = .760 M HG  
 ( REL HUMID = 70 %  
 ( IDENTIFICATION:  
 ( OMEGA 1.4  
 ( TEST BS-005-001  
 ( RUN 06  
 ( 26 JUL 82  
 ( PAGE 21



( FIGURE: SOUND PRESSURE LEVEL [SPL]  
 ( 11 EQUAL LEVEL CONTOURS (DB)  
 ( 500 HZ OCTAVE BAND  
 ( NOISE SOURCE/SUBJECT: ( OPERATION:  
 ( KC-10A AIRCRAFT ( TAKEOFF RATED THRUST  
 ( CF6-50C2 ( ENGINE NO. 1  
 ( FAR FIELD NOISE ( FREE FLOW  
 ( METEORLOGY:  
 ( TEMP = 15 C  
 ( BAR PRESS = .760 M HG  
 ( REL HUMID = 70 %  
 ( IDENTIFICATION:  
 ( OMEGA 1-4  
 ( TEST BS-005-001  
 ( RUN 06  
 ( 26 JUL 82  
 ( PAGE 22



DISTANCE FROM SOURCE (METERS)  
 1000  
 100

FIGURE: SOUND PRESSURE LEVEL [SPL]  
EQUAL LEVEL CONTOURS (DB)  
1000 HZ OCTAVE BAND

11

IDENTIFICATION:  
OMEGA 1.4  
TEST 9S-005-001  
RUN 06

NOISE SOURCE/SUBJECT:

OPERATION:

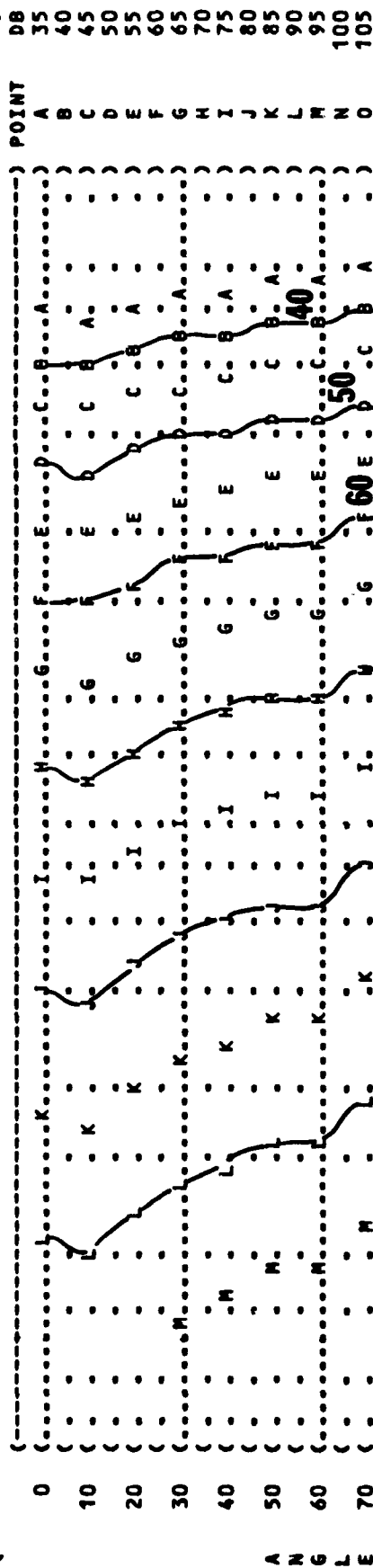
METEOROLOGY:

KC-10A AIRCRAFT  
CF6-50C2  
FAR FIELD NOISE

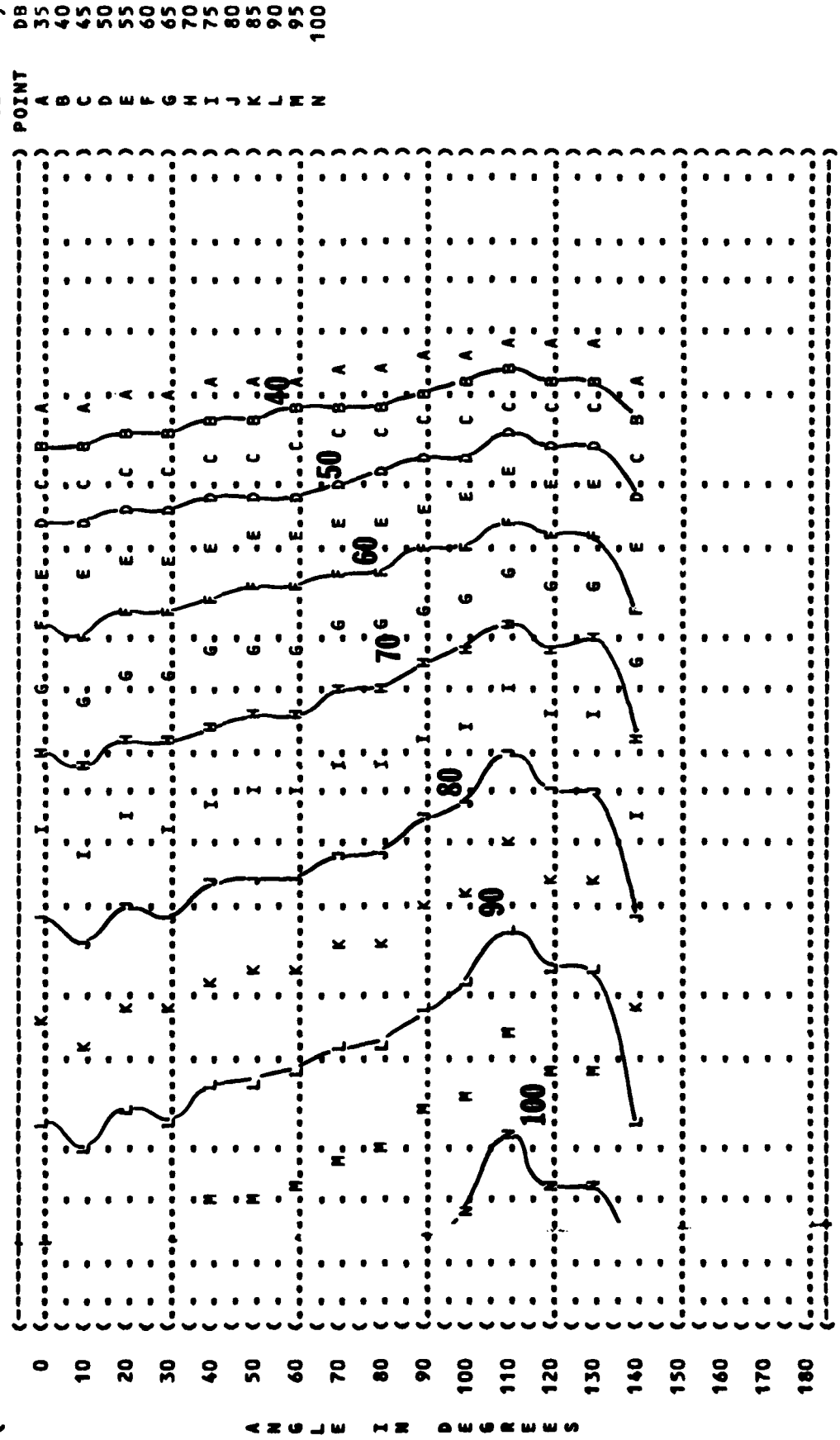
TAKEOFF RATED THRUST  
ENGINE NO. 1  
FREE FLOW

TEMP = 15 C  
BAR PRESS = 760 MM HG  
REL HUMID = 70 %

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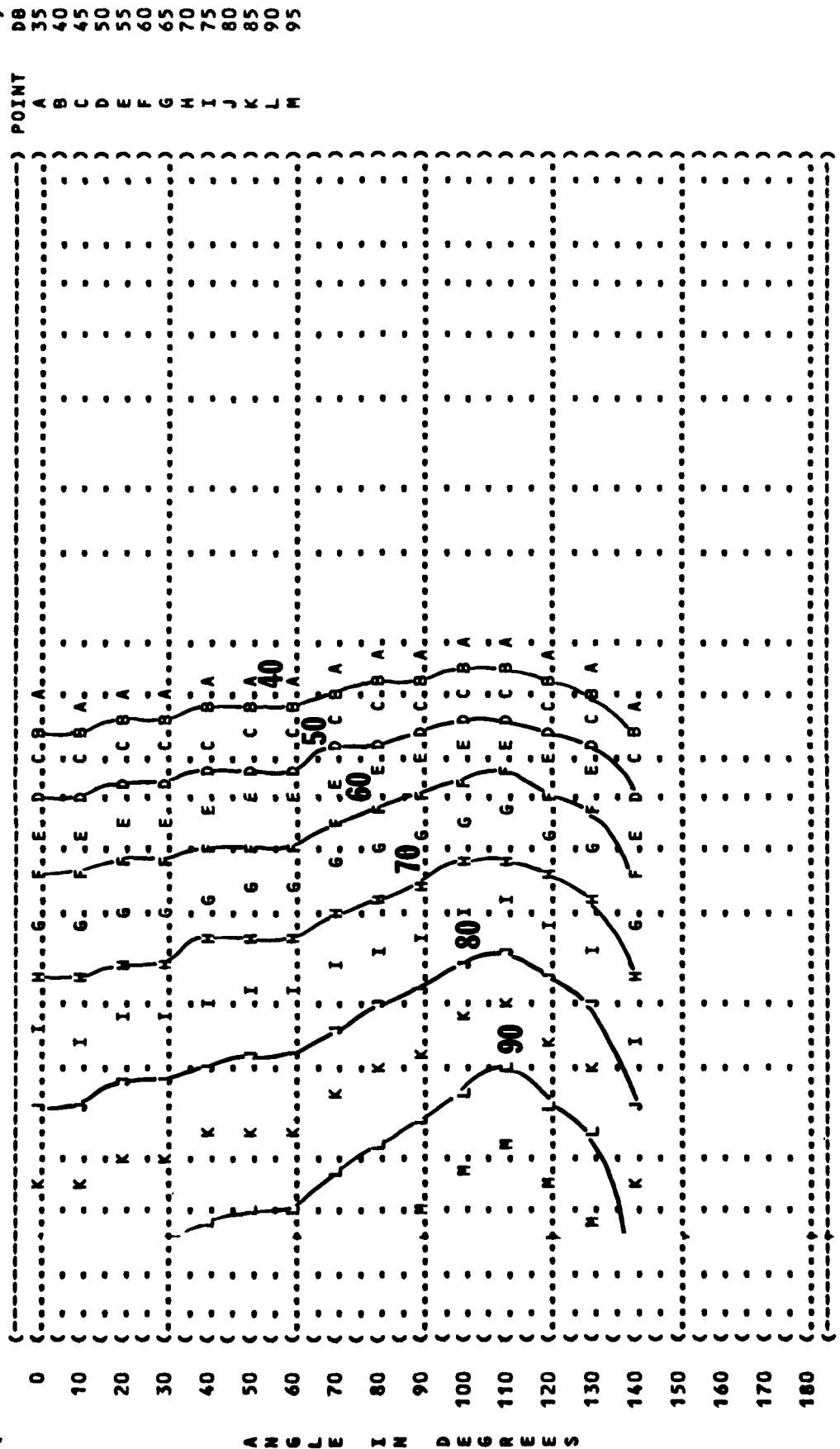
( FIGURE: SOUND PRESSURE LEVEL [SPL]  
 ( 11 EQUAL LEVEL CONTOURS (DB)  
 ( 2000 HZ OCTAVE BAND  
 ( NOISE SOURCE/SUBJECT:  
 ( KC-10A AIRCRAFT  
 ( CF6-50C2  
 ( FAR FIELD NOISE  
 ( OPERATION:  
 ( TAKEOFF RATED THRUST  
 ( ENGINE NO. 1  
 ( FREE FLOW  
 ( METEORCLOGY:  
 ( TEMP = 15 C  
 ( BAR PRESS = .760 M HG  
 ( REL HUMID = 70 X  
 ( IDENTIFICATION:  
 ( OMEGA 1-4  
 ( TEST BS-005-001  
 ( RUN 06  
 ( 26 JUL 82  
 ( PAGE 24



5 6 8 1 1.5 2 3 4 5 6 8 1000 100  
 DISTANCE FROM SOURCE (METERS)



( FIGURE: SOUND PRESSURE LEVEL [SPL]  
 ( 11 EQUAL LEVEL CONTOURS (DB)  
 ( 8000 HZ OCTAVE BAND  
 ( NOISE SOURCE/SUBJECT: ( OPERATION:  
 ( KC-10A AIRCRAFT ( TAKEOFF RATED THRUST  
 ( CF6-50C2 ( ENGINE NO. 1  
 ( FAR FIELD NOISE ( FREE FLOW  
 ( METEOROLOGY:  
 ( TEMP = 15 C  
 ( BAR PRESS = .760 M HG  
 ( REL HUMID = 70 %  
 ( IDENTIFICATION:  
 ( OMEGA 1.4  
 ( TEST BS-005-001  
 ( RUN 06  
 ( 26 JUL 82  
 ( PAGE 26



DB 35 40 45 50 55 60 65 70 75 80 85 90 95  
 POINT A B C D E F G H I J K L M  
 DISTANCE FROM SOURCE (METERS)  
 5 6 8 1 1.5 2 3 4 5 6 8 1000



IDENTIFICATION: OMEGA 1.4

**OMEGA 1.4**  
**TEST BS-003-001**

### METEORLOGY:

**RUN 07**

**45X RPM ALL ENGINES**

**BAR PRESS = .760 M HG**

**FREE FLOW**

REL HUMID = 70 %

**PAGE 18**



FIGURE: SOUND PRESSURE LEVEL [SPL]  
EQUAL LEVEL CONTOURS (DB)  
11 63 HZ OCTAVE BAND

IDENTIFICATION:  
OMEGA 1.4  
TEST BS-005-001  
RUN 07

METEOROLOGY:

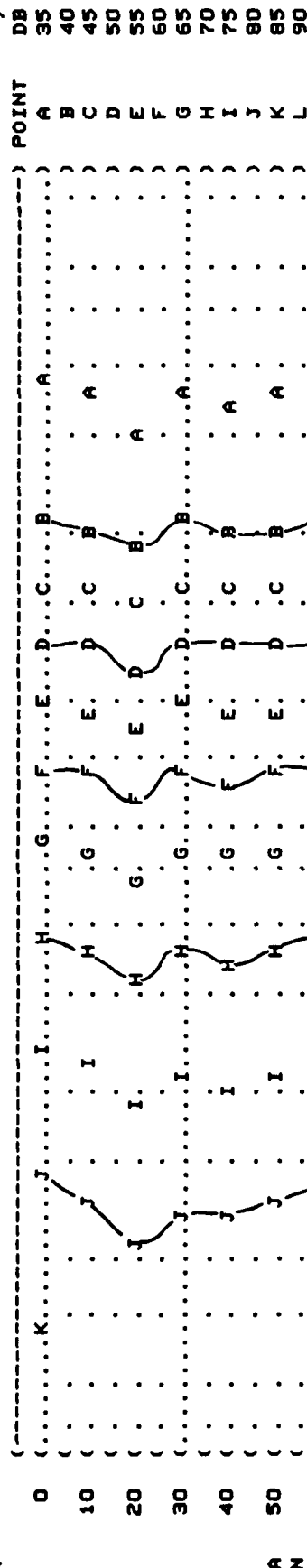
TEMP = 15 C  
BAR PRESS = .760 M HG  
REL HUMID = 70 %

OPERATION:

45% RPM ALL ENGINES  
FREE FLOW

NOISE SOURCE/SUBJECT:

KC-10A AIRCRAFT  
CF6-50C2  
FAR FIELD NOISE



ANGL IN DEGR EES

FIGURE: SOUND PRESSURE LEVEL [SPL]  
 EQUAL LEVEL CONTOURS (DB)  
 11 125 HZ OCTAVE BAND

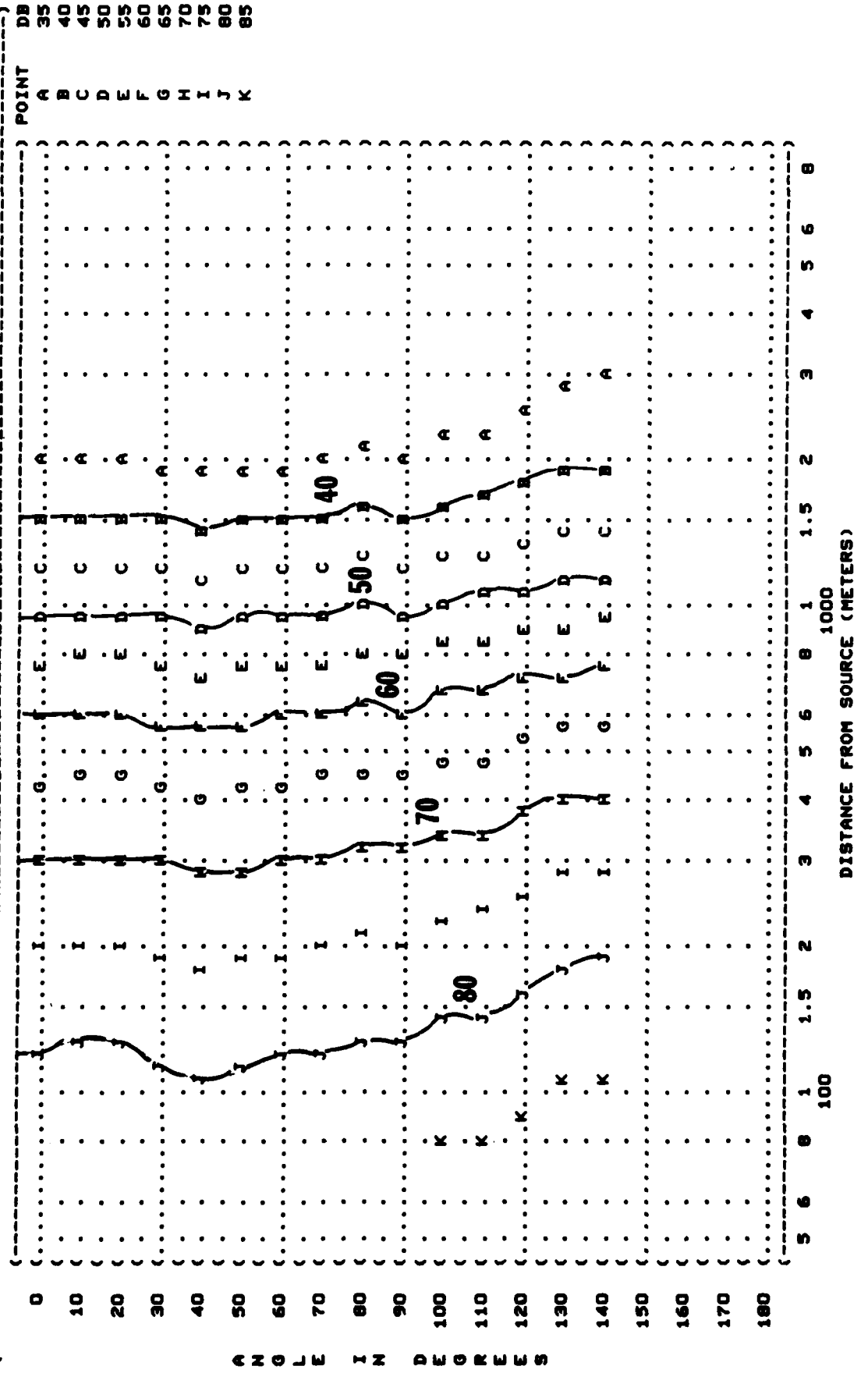
IDENTIFICATION:  
 OMEGA 1.4  
 TEST BS-005-001  
 RUN 07

NOISE SOURCE/SUBJECT:  
 KC-10A AIRCRAFT  
 CF6-50C2  
 FAR FIELD NOISE

OPERATION:  
 45X RPM ALL ENGINES  
 FREE FLOW

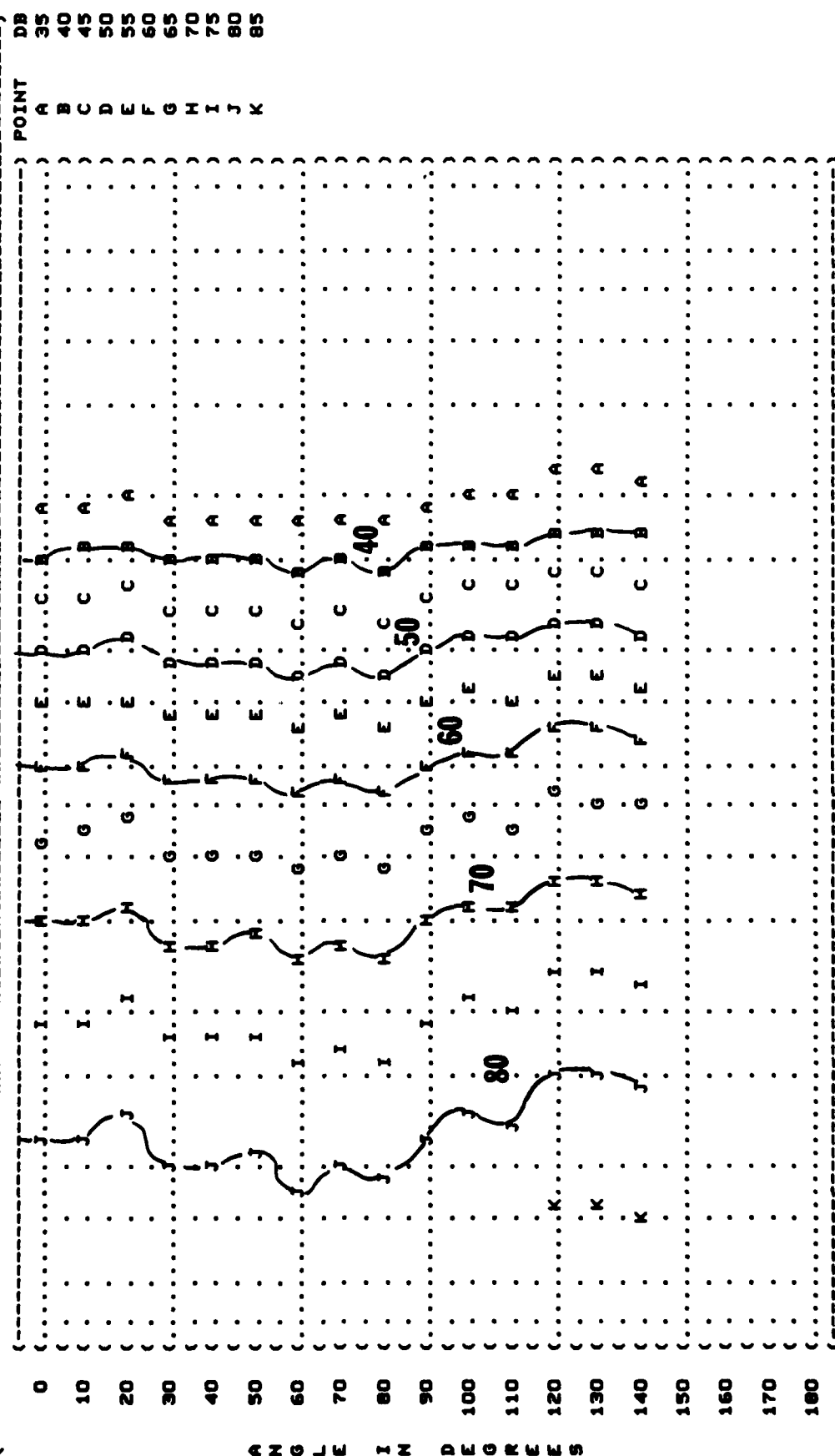
METEOROLOGY:  
 TEMP = 15 C  
 BAR PRESS = .760 M HG  
 REL HUMID = 70 X

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AMG L E I N D E G R E E S

( FIGURE: SOUND PRESSURE LEVEL [SPL]  
 ( EQUAL LEVEL CONTOURS (DB)  
 ( 11 250 HZ OCTAVE BAND  
 ( NOISE SOURCE/SUBJECT: ( OPERATION:  
 ( KC-10A AIRCRAFT ( 45X RPM ALL ENGINES  
 ( CFS-SOC2 ( FREE FLOW  
 ( FAR FIELD NOISE ( METEOROLOGY:  
 ( TEMP = 15 C  
 ( BAR PRESS = .760 M HG  
 ( REL HUMID = 70 X  
 ( PAGE 21  
 ( IDENTIFICATION:  
 ( OMEGA 1.4  
 ( TEST BS-005-001  
 ( RUN 07



ANGLE IN DEGREES

DISTANCE FROM SOURCE (METERS)

FIGURE: SOUND PRESSURE LEVEL [SPL]  
EQUAL LEVEL CONTOURS (DB)  
500 HZ OCTAVE BAND

11

NOISE SOURCE/SUBJECT:

OPERATION:

METEOROLOGY:

IDENTIFICATION:

OMEGA 1.4

TEST BS-005-001

RUN 07

TEMP = 15 C

BAR PRESS = .760 M HG

REL HUMID = 70 %

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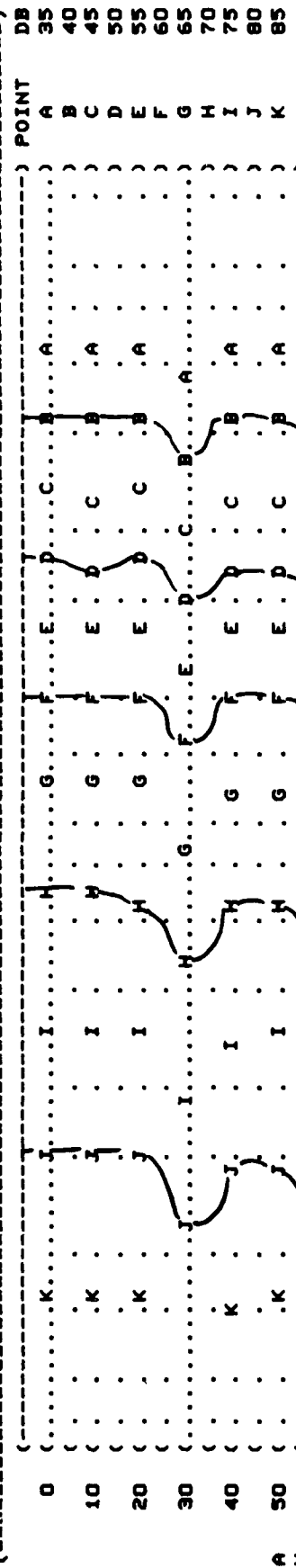
45X RPM ALL ENGINES

FREE FLOW

KC-10A AIRCRAFT

CF6-SOC2

FAR FIELD NOISE



ANGLES IN DEGREES

DISTANCE FROM SOURCE (METERS)

FIGURE: SOUND PRESSURE LEVEL (SPL)  
EQUAL LEVEL CONTOURS (DB)  
11 1000 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:

OPERATION:

METEOROLOGY:

KC-10A AIRCRAFT  
CF6-SOC2  
FAR FIELD NOISE

45X RPM ALL ENGINES  
FREE FLOW

TEMP = 15 C  
BAR PRESS = .760 M HG  
REL HUMID = 70 X

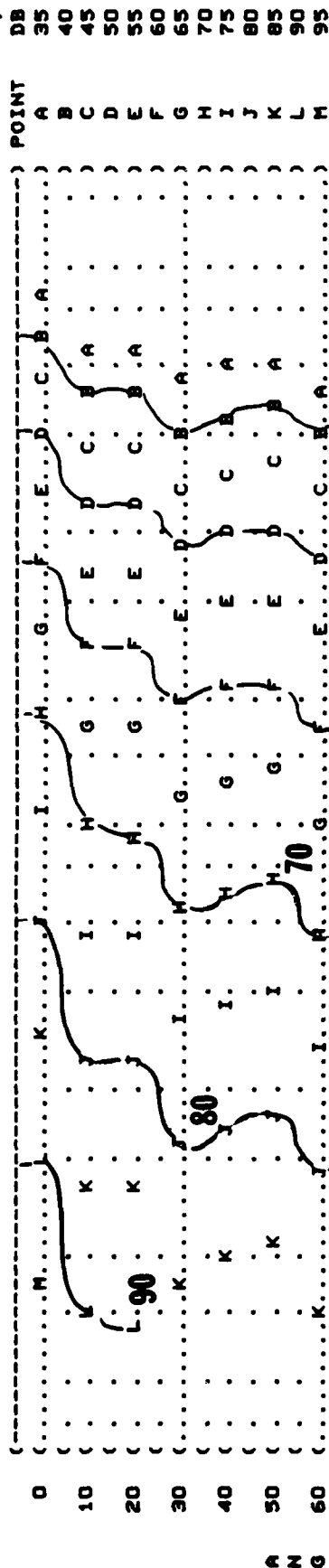
OMEGA 1.4

TEST BS-005-001

RUN 07

26 JUL 82

PAGE 23



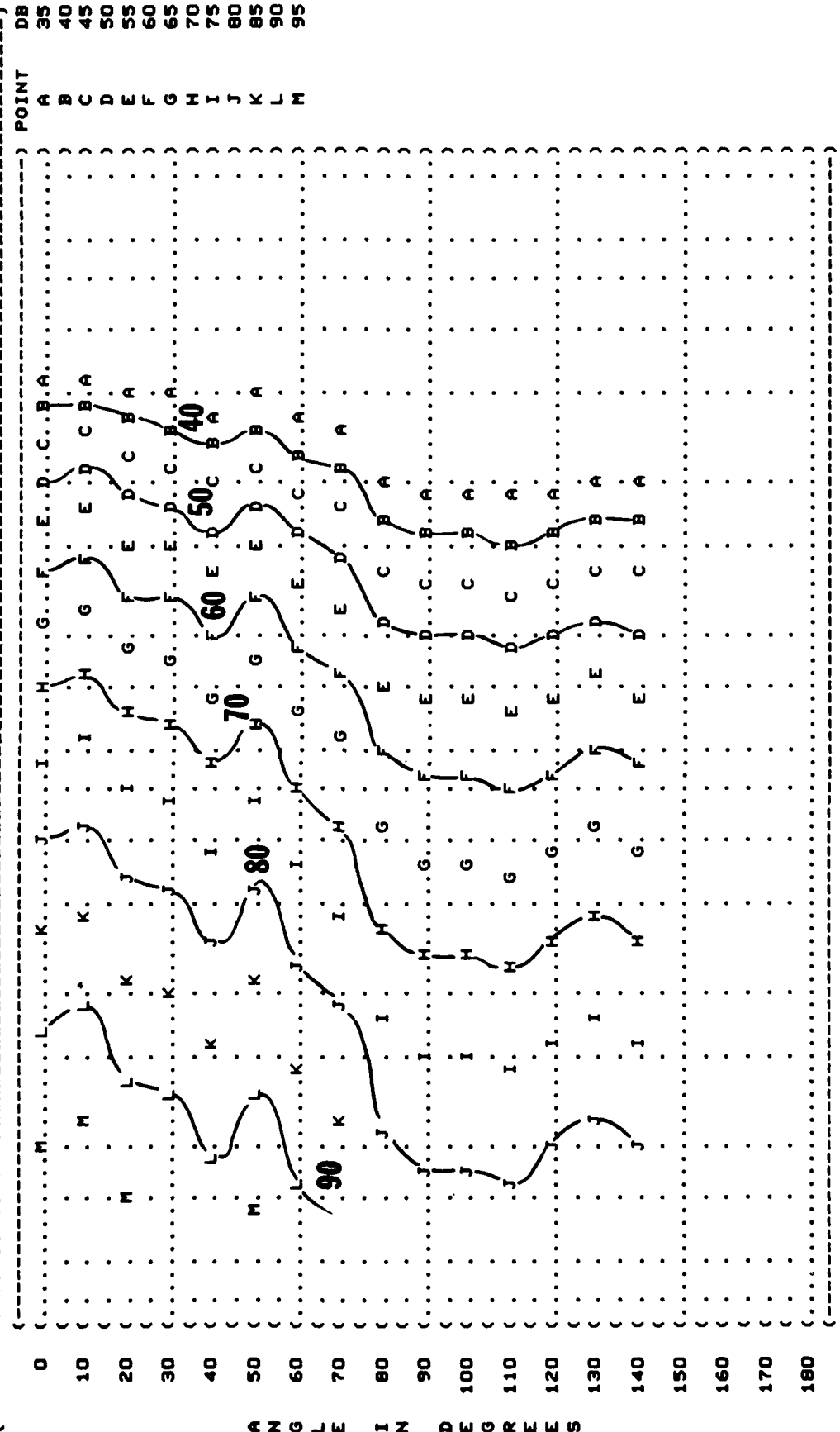
ANGLE IN DEGREE S

IDENTIFICATION:  
 OMEGA 1.4  
 TEST BS-005-001  
 RUN 07  
 26 JUL 82  
 PAGE 24

METEOROLOGY:  
 TEMP = 15 C  
 BAR PRESS = .760 M HG  
 REL HUMID = 70 %

OPERATION:  
 45X RPM ALL ENGINES  
 FREE FLOW

NOISE SOURCE/SUBJECT:  
 KC-10A AIRCRAFT  
 CF6-SOC2  
 FAR FIELD NOISE



A N G L E I N D E G R E E S

( FIGURE: SOUND PRESSURE LEVEL [SPL]  
 ( EQUAL LEVEL CONTOURS (DB)  
 ( 11 4000 HZ OCTAVE BAND  
 ( NOISE SOURCE/SUBJECT: ( OPERATION:  
 ( KC-10A AIRCRAFT ( 45X RPM ALL ENGINES  
 ( CF6-50C2 ( FREE FLOW  
 ( FAR FIELD NOISE ( METEOROLOGY:  
 ( TEMP = 15 C  
 ( BAR PRESS = .760 M HG  
 ( REL HUMID = 70 X  
 ( IDENTIFICATION:  
 ( OMEGA 1.4  
 ( TEST BS-005-001  
 ( RUN 07  
 ( 26 JUL 82  
 ( PAGE 25

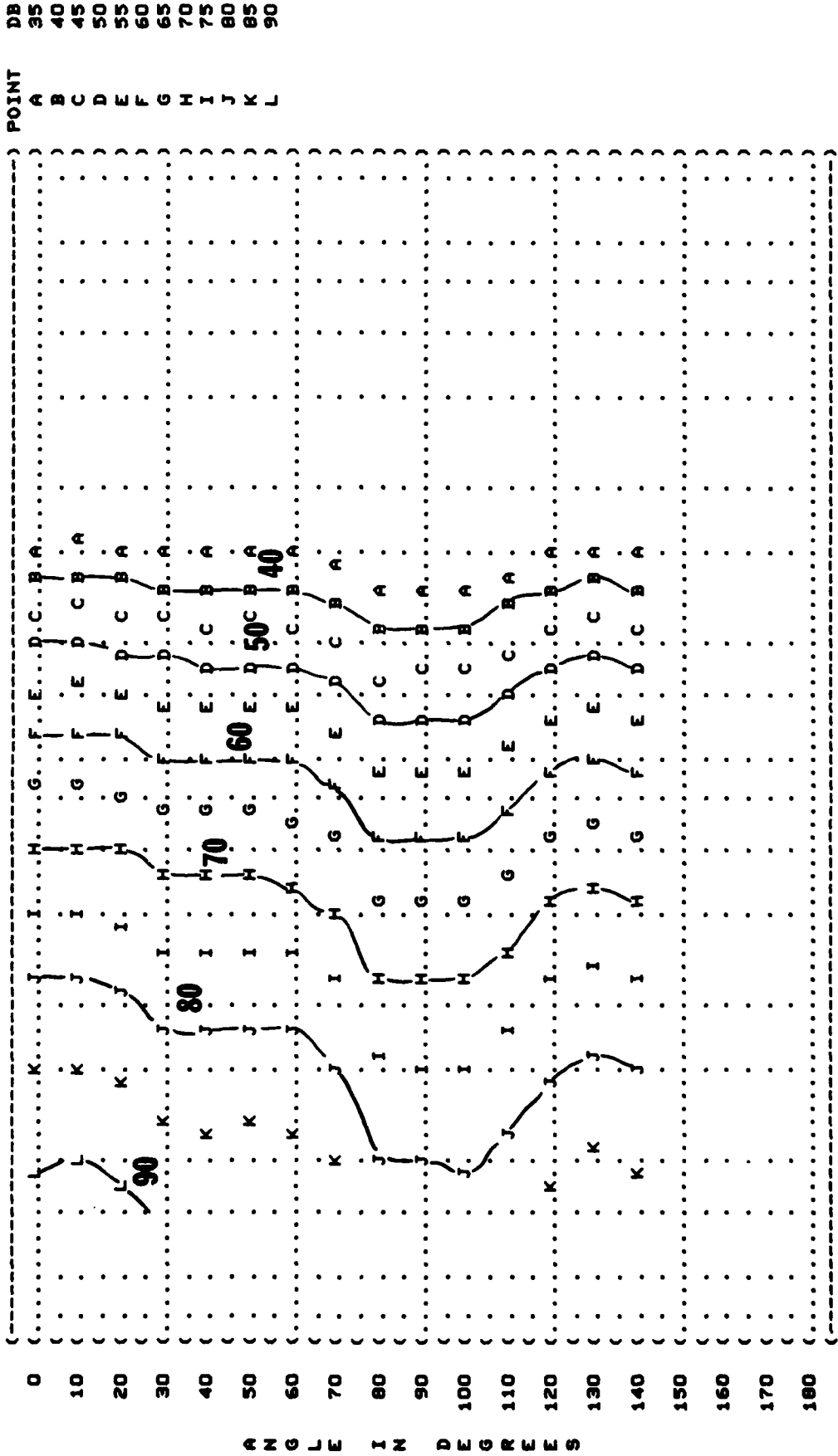


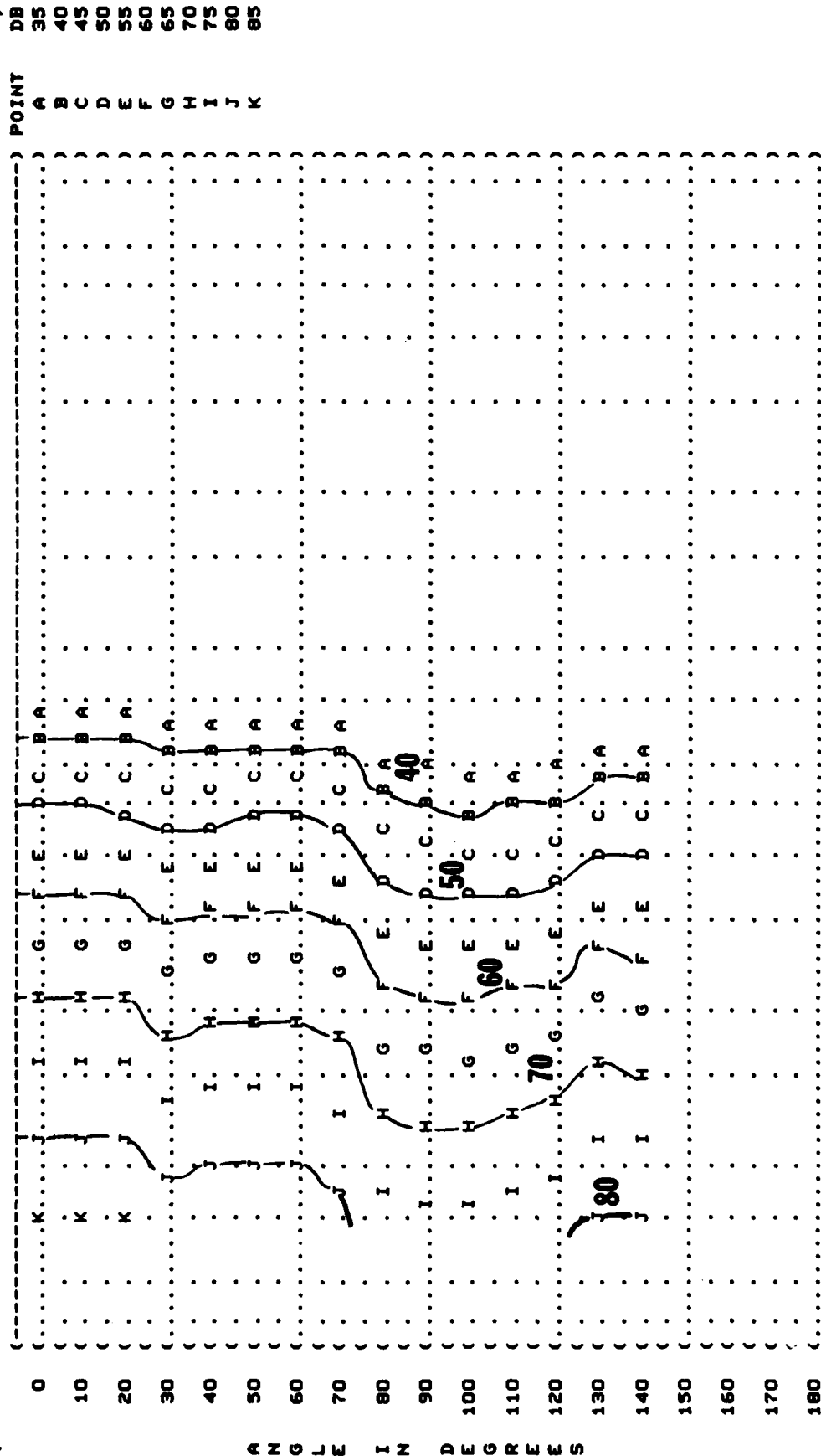


FIGURE: SOUND PRESSURE LEVEL [SPL]  
EQUAL LEVEL CONTOURS (DB)  
11 8000 HZ OCTAVE BAND

IDENTIFICATION:  
OMEGA 1.4  
TEST BS-005-001  
RUN 07  
TEMP = 15 C  
BAR PRESS = .760 M HG  
REL HUMID = 70 %  
PAGE 26

NOISE SOURCE/SUBJECT: ( OPERATION: )

KC-10A AIRCRAFT ( 45X RPM ALL ENGINES )  
CF6-SOC2 ( FREE FLOW )  
FAR FIELD NOISE ( )



5 6 8 1 1.5 2 3 4 5 6 8  
100 1000  
DISTANCE FROM SOURCE (METERS)

A N G L E I N D E G R E E S

FIGURE: SOUND PRESSURE LEVEL [SPL]  
EQUAL LEVEL CONTOURS (DB)

11

31.5 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:

OPERATION:

METEOROLOGY:

KC-10A AIRCRAFT  
CF6-50C2  
FAR FIELD NOISE

95X RPM ALL ENGINES  
FREE FLOW

TEMP = 15 C  
BAR PRESS = .760 M HG  
REL HUMID = 70 X

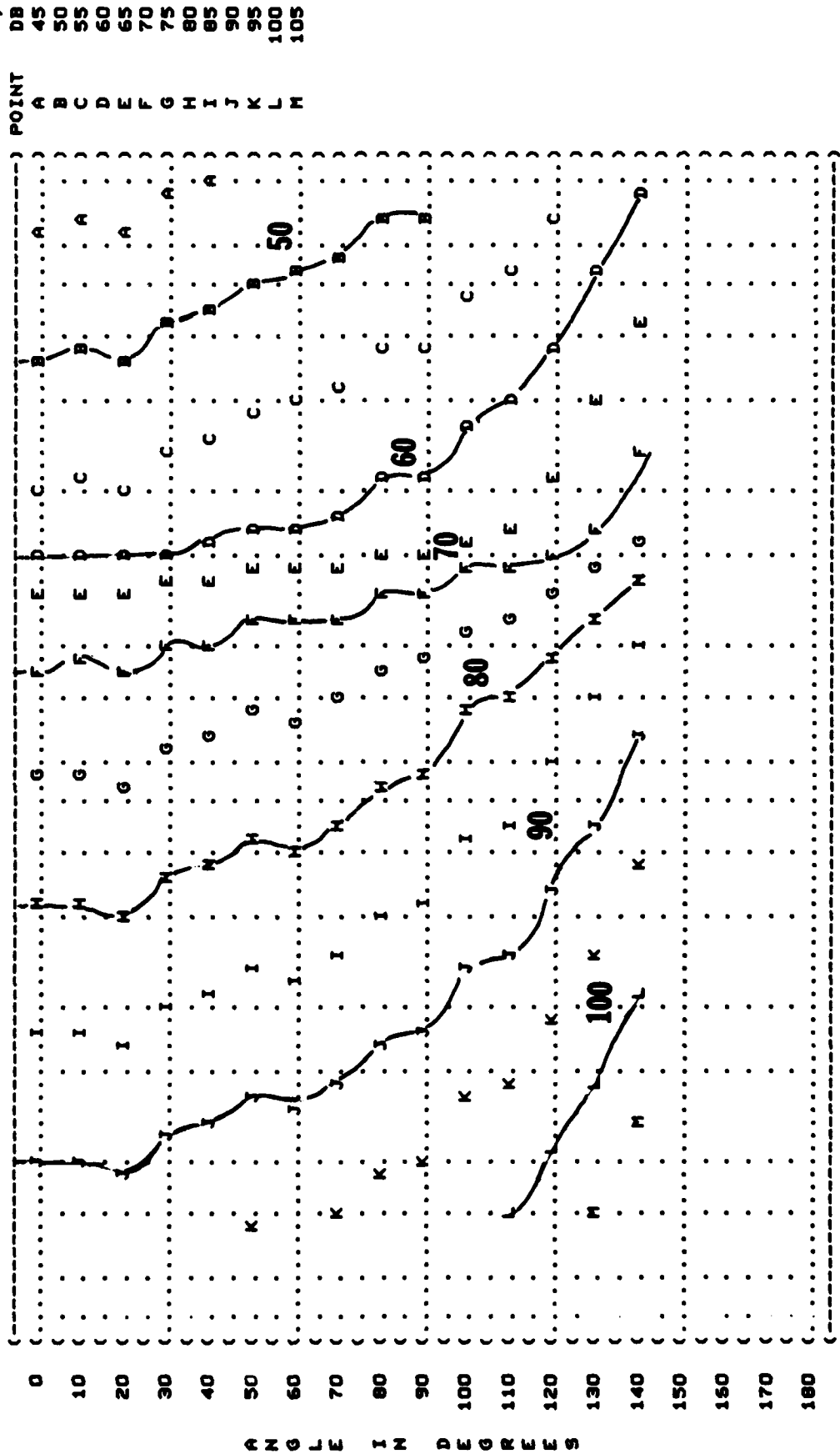
OMEGA 1.4

TEST BS-005-001

RUN 08

26 JUL 82

PAGE 18



DISTANCE FROM SOURCE (METERS)

FIGURE: SOUND PRESSURE LEVEL [SPL]  
EQUAL LEVEL CONTOURS (DB)  
11 63 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:

OPERATION:

METEOROLOGY:

IDENTIFICATION:

OMEGA 1.4

TEST 88-005-001

RUN 08

TEMP = 15 C

95% RPM ALL ENGINES

BAR PRESS = .760 M HG

FREE FLOW

REL HUMID = 70 %

FAR FIELD NOISE

PAGE 19

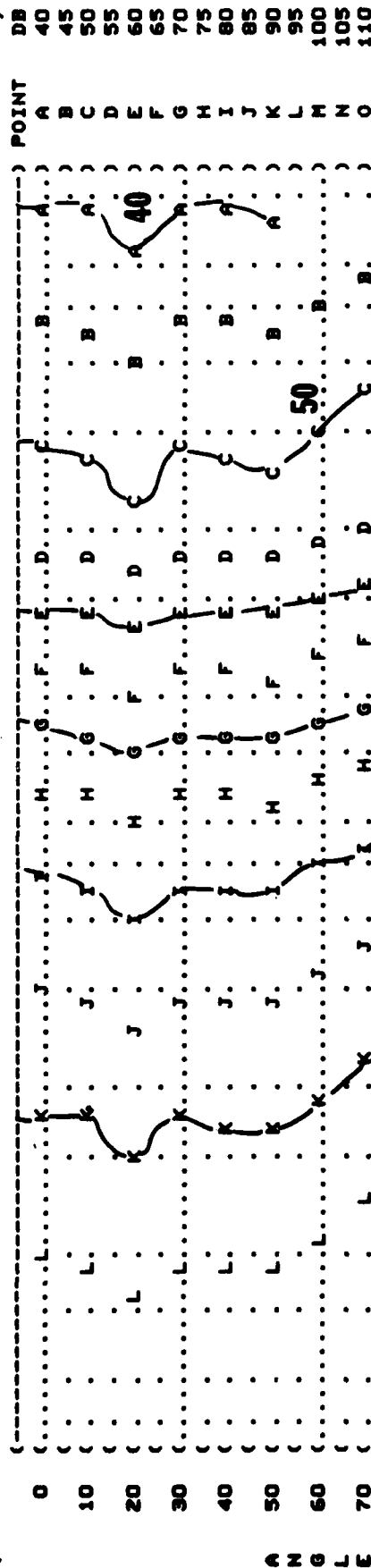


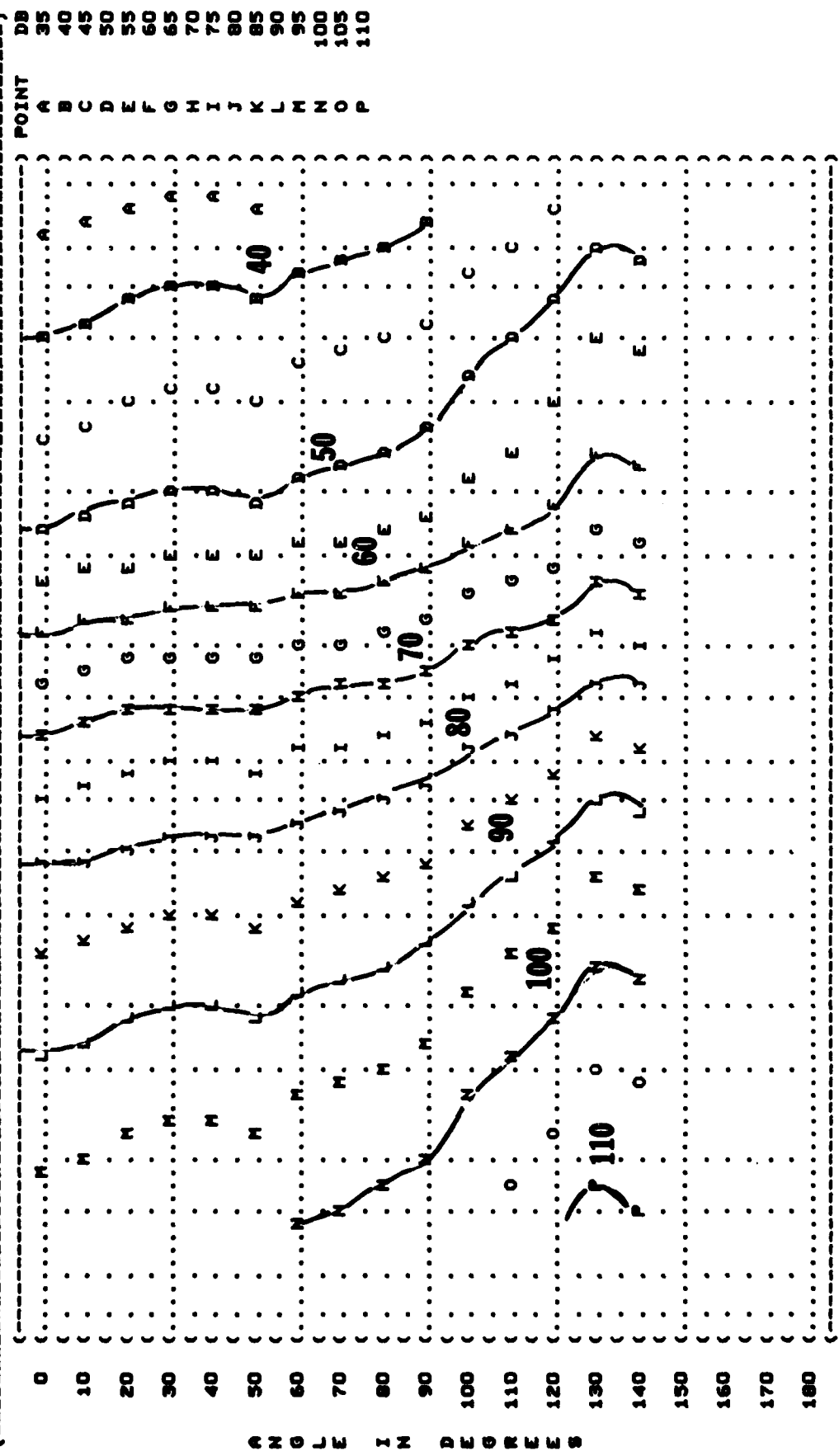
FIGURE: SOUND PRESSURE LEVEL (SPL)  
EQUAL LEVEL CONTOURS (DB)  
11 125 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT: KC-10A AIRCRAFT  
CF6-50C2  
FAR FIELD NOISE

OPERATION: 95% RPM ALL ENGINES  
FREE FLOW

METEOROLOGY: TEMP = 15 C  
BAR PRESS = .760 M HG  
REL HUMID = 70 %

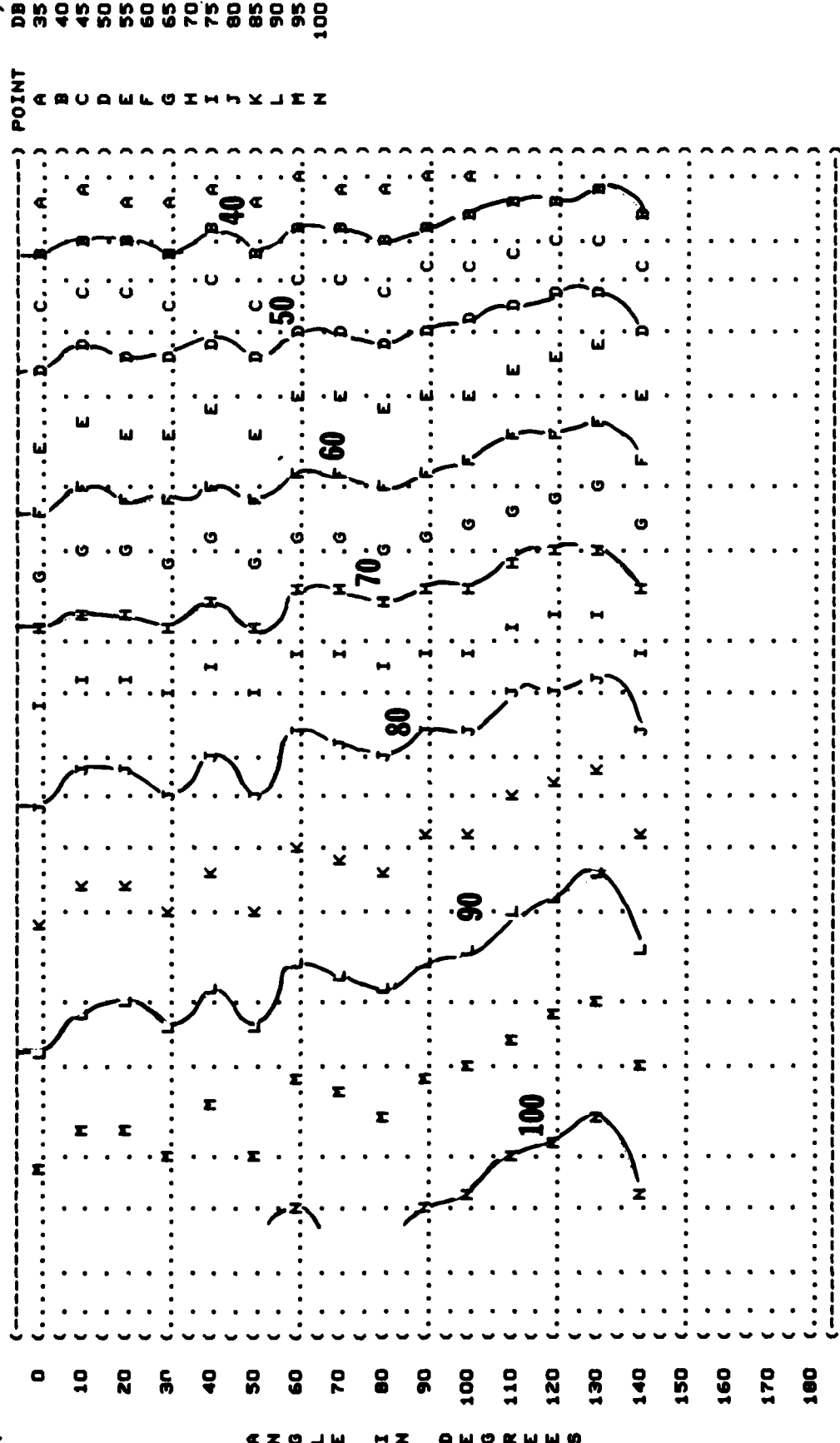
IDENTIFICATION: OMEGA 1.4  
TEST BS-005-001  
RUN 08  
26 JUL 82  
PAGE 20



DISTANCE FROM SOURCE (METERS)



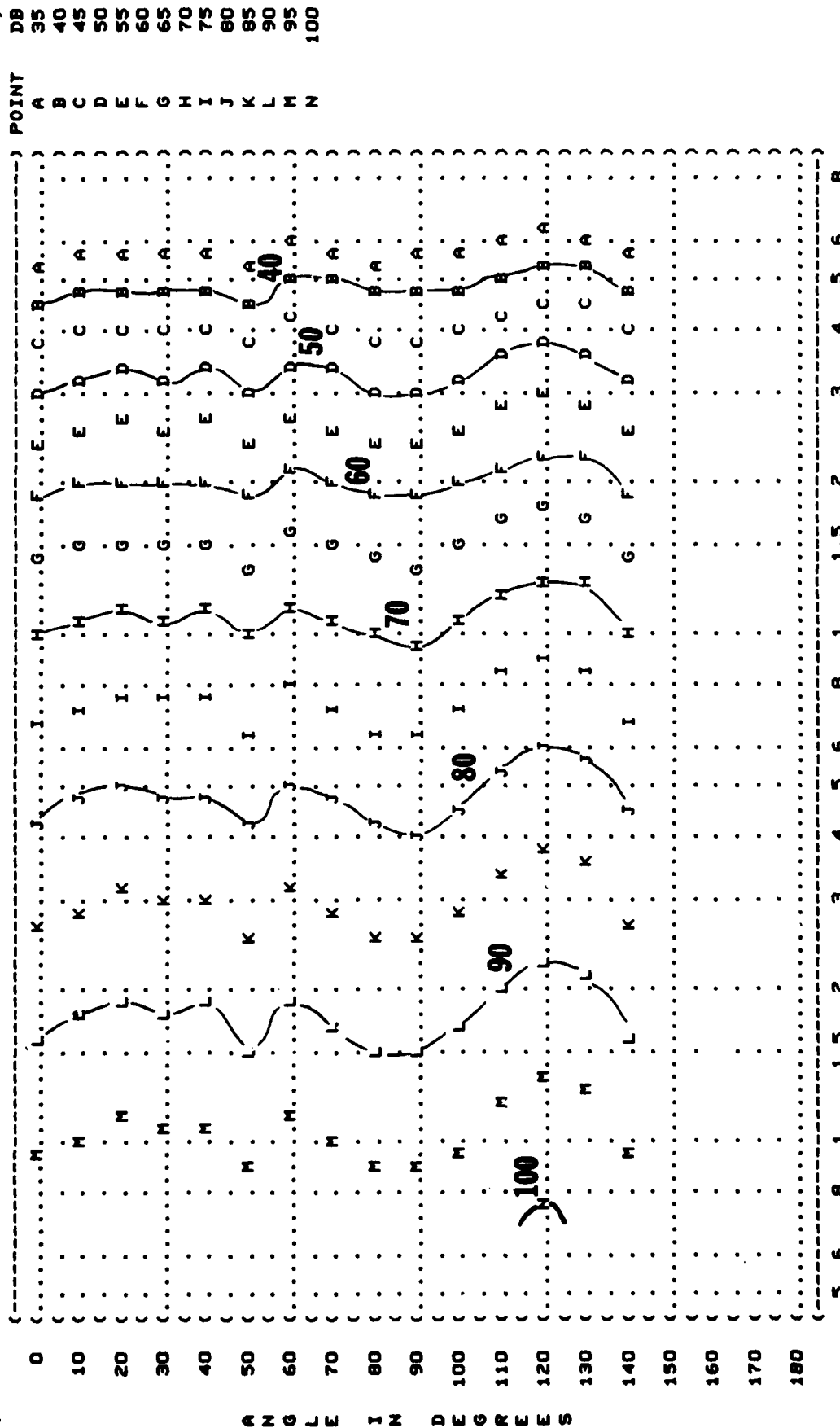
( FIGURE: SOUND PRESSURE LEVEL [SPL]  
 ( EQUAL LEVEL CONTOURS (DB)  
 ( 11 500 HZ OCTAVE BAND  
 ( NOISE SOURCE/SUBJECT: ( OPERATION:  
 ( KC-10A AIRCRAFT ( 95X RPM ALL ENGINES  
 ( CF6-50C2 ( FREE FLOW  
 ( FAR FIELD NOISE ( )  
 ( ) METEOROLOGY:  
 ( ) TEMP = 15 C  
 ( ) BAR PRESS = .760 M HG  
 ( ) REL HUMID = 70 %  
 ( ) PAGE 22  
 ( IDENTIFICATION:  
 ( ) OMEGA 1.4  
 ( ) TEST BS-005-001  
 ( ) RUN 08  
 ( ) 26 JUL 82



DB 35 40 45 50 55 60 65 70 75 80 85 90 95 100  
 POINT A B C D E F G H I J K L M N  
 40 50 60 70 80 90 100  
 5 6 8 1 1.5 2 3 4 5 6 8 1000 100  
 DISTANCE FROM SOURCE (METERS)

FIGURE: SOUND PRESSURE LEVEL (SPL)  
EQUAL LEVEL CONTOURS (DB)  
11 1000 HZ OCTAVE BAND

IDENTIFICATION:  
OMEGA 1.4  
TEST BS-005-001  
RUN 08  
METEOROLOGY:  
TEMP = 15 C  
BAR PRESS = .760 M HG  
REL HUMID = 70 %  
OPERATION:  
95X RPM ALL ENGINES  
FREE FLOW  
NOISE SOURCE/SUBJECT:  
KC-10A AIRCRAFT  
CF6-50C2  
FAR FIELD NOISE



( ) FIGURE: SOUND PRESSURE LEVEL (SPL)  
 ( ) EQUAL LEVEL CONTOURS (DB)  
 ( ) 11 2000 HZ OCTAVE BAND  
 ( ) NOISE SOURCE/SUBJECT: ( ) OPERATION:  
 ( ) KC-10A AIRCRAFT ( ) 95X RPM ALL ENGINES  
 ( ) CF6-50C2 ( ) FREE FLOW  
 ( ) FAR FIELD NOISE ( )  
 ( ) METEOROLOGY: ( ) TEMP = 15 C  
 ( ) BAR PRESS = .760 M HG  
 ( ) REL HUMID = 70 X  
 ( ) IDENTIFICATION: ( ) OMEGA 1.4  
 ( ) TEST BS-005-001  
 ( ) RUN 08  
 ( ) PAGE 24

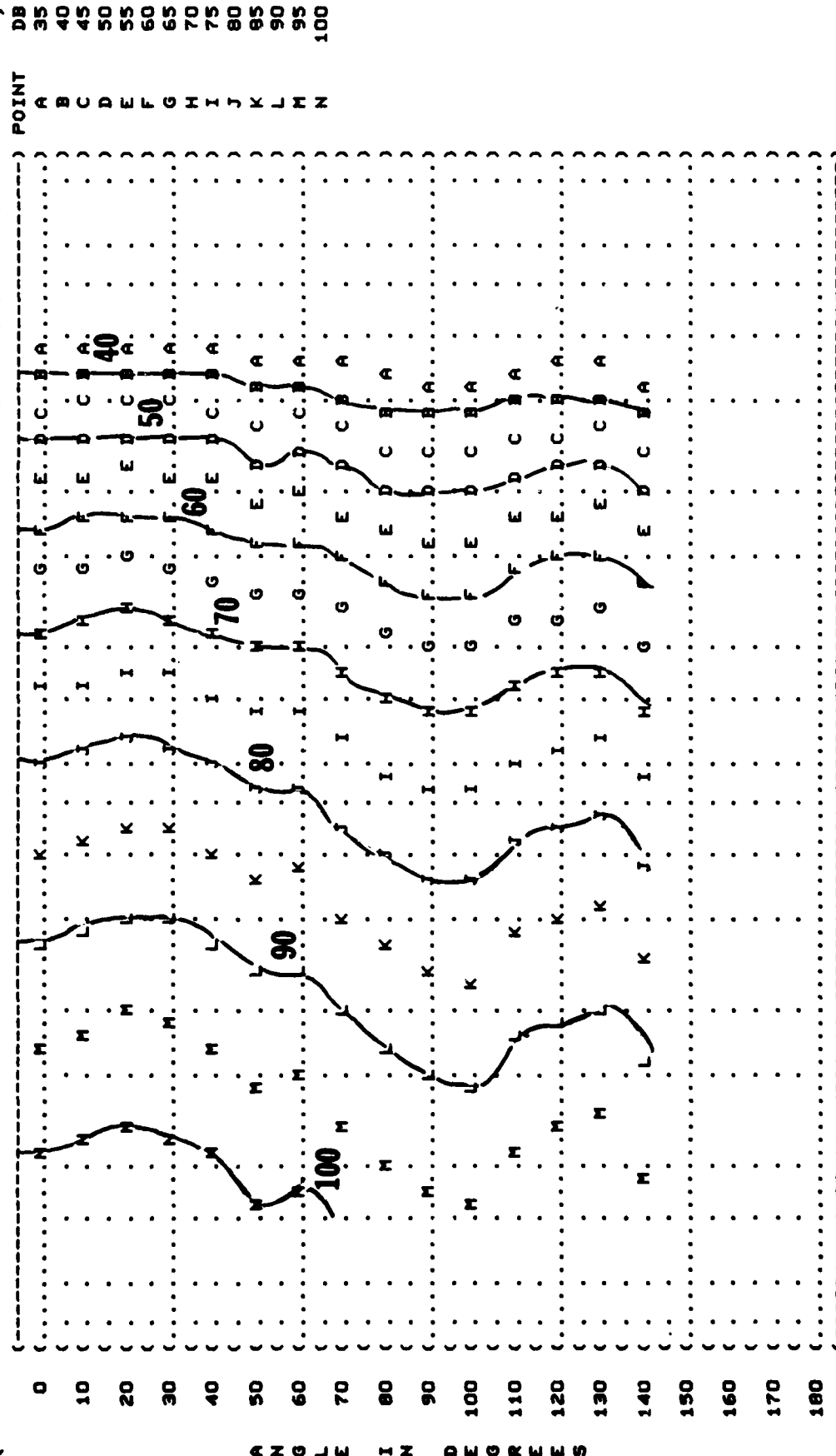




FIGURE: SOUND PRESSURE LEVEL [SPL]  
EQUAL LEVEL CONTOURS (DB)  
11 4000 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:

OPERATION:

KC-10A AIRCRAFT  
CF6-SOC2  
FAR FIELD NOISE

95X RPM ALL ENGINES  
FREE FLOW

TEMP = 15 C  
BAR PRESS = .760 M HG  
REL HUMID = 70 X

IDENTIFICATION:

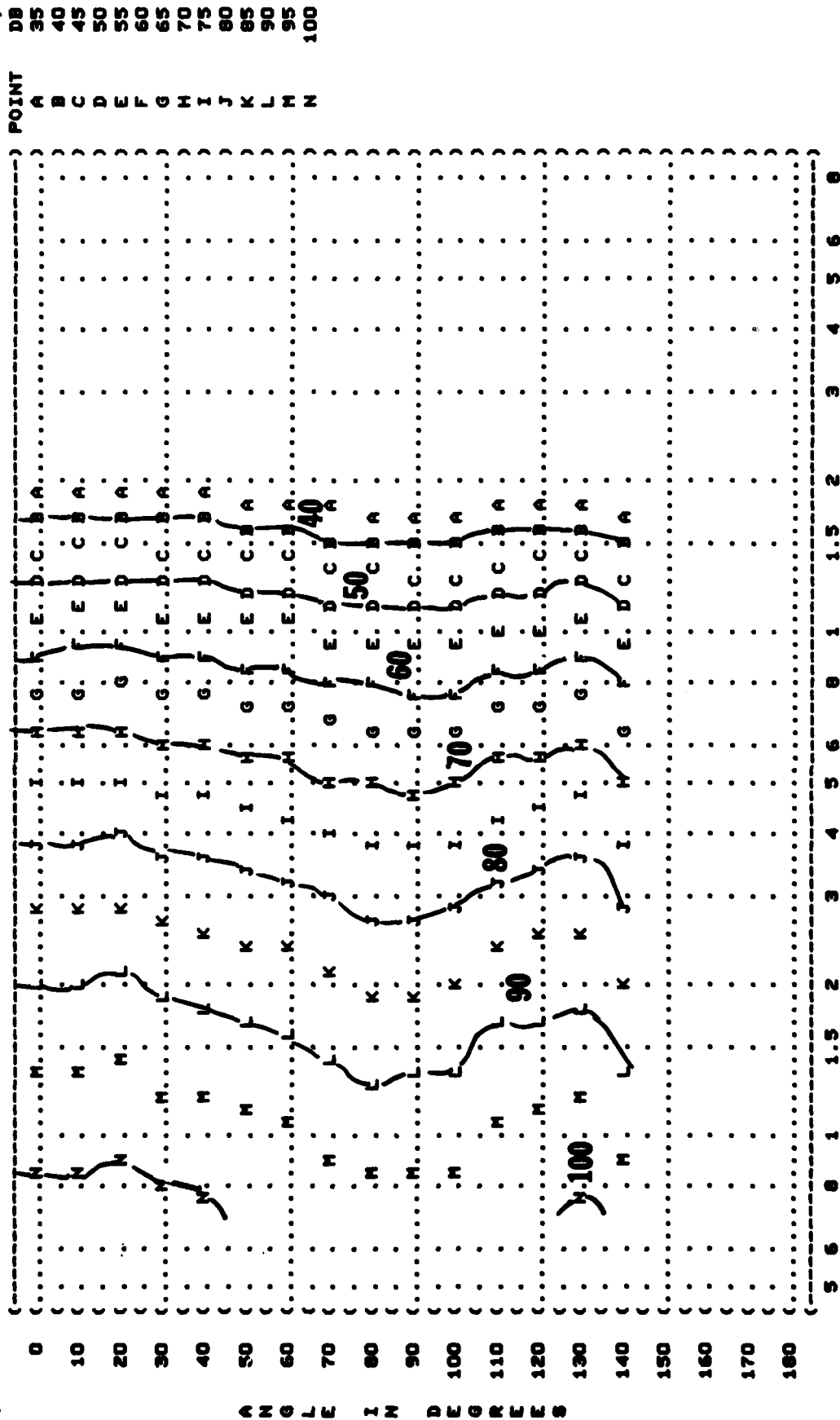
OMEGA 1.4

TEST 89-005-001

RUN 08

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DISTANCE FROM SOURCE (METERS)

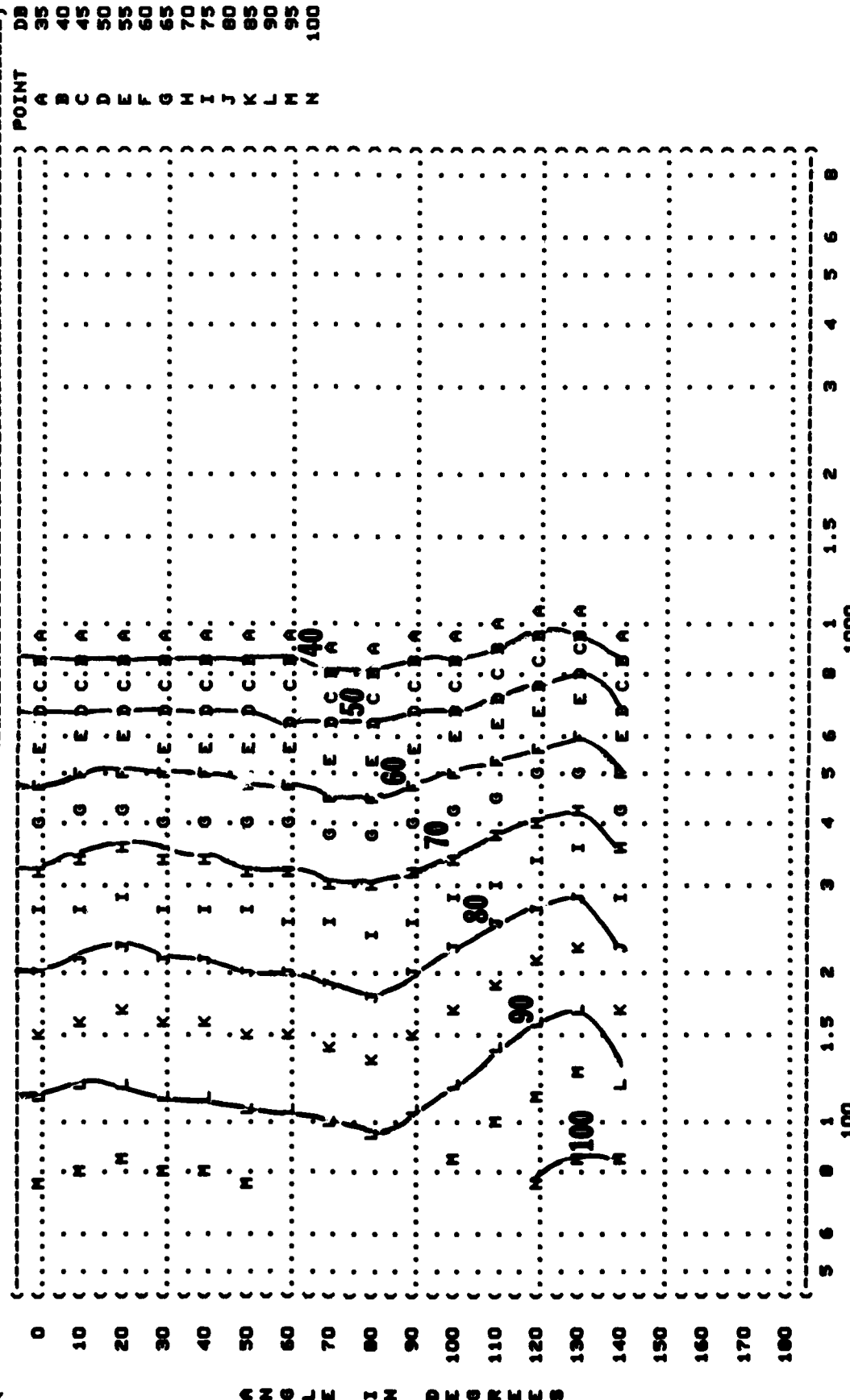
FIGURE: SOUND PRESSURE LEVEL (SPL)  
 11 EQUAL LEVEL CONTOURS (DB)  
 8000 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT: KC-10A AIRCRAFT  
 CF6-50C2  
 FAR FIELD NOISE

OPERATION: 95X RPM ALL ENGINES  
 FREE FLOW

METEOROLOGY: TEMP = 15 C  
 BAR PRESS = .760 M HG  
 REL HUMID = 70 X

IDENTIFICATION: OMEGA 1.4  
 TEST 88-005-001  
 RUN 08  
 26 JUL 82  
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ANGLE IN DEGREES

DISTANCE FROM SOURCE (METERS)